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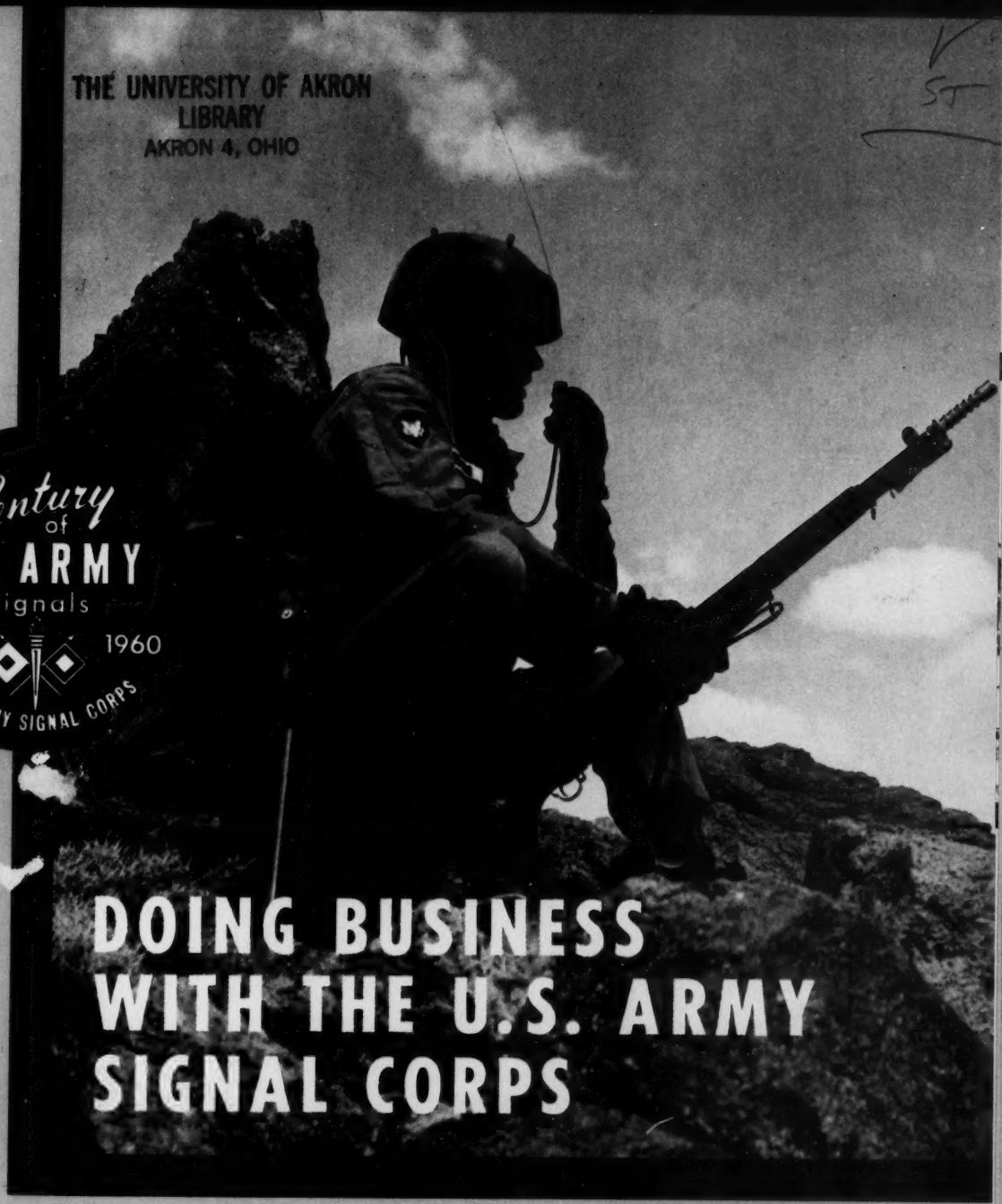
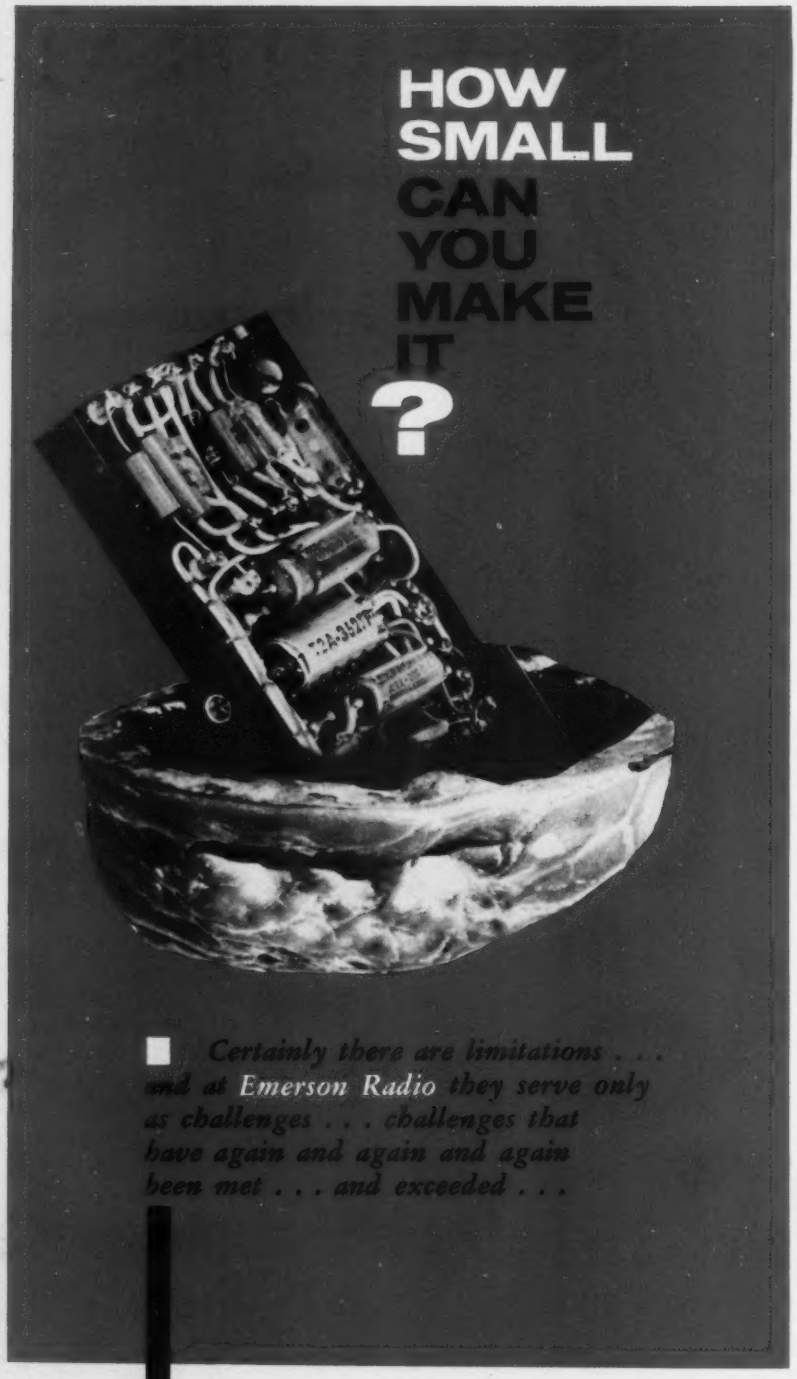


DOING BUSINESS WITH THE U.S. ARMY SIGNAL CORPS

data

GOVT. R&D DATA M-50 9/60



EMERSON RADIO & PHONOGRAPH CORPORATION
Government Electronics Division

14th and Coles Sts. • Jersey City, N.J.

1140 East-West Highway, Silver Spring, Md.
(In Metropolitan Washington, D. C.)

DATA MAGAZINE

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QUEENSMITH ASSOCIATES, INC.

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MURRAY QUEEN-SMITH
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WALTER SEAGER
Business Manager:
DANIEL WORLEY
Circulation & Service Manager:
MISS HELEN RODIN

SEPTEMBER 1960 COVER

Infantryman shown in cover photo is using RCA-developed AN/PRC-34 miniature transmitter-receiver and a dry battery pack providing a 12-hour power supply based on a transmitter-receive ratio of 1 to 9. The radio weighs 3 pounds, 4 ounces including the helmet, provides voice communications over a distance of from 300 to 500 yards between individuals.

SUBSCRIPTION RATES

Subscriptions are available to both Government and Industry personnel. U.S.—$12.00 for 1 year; $22.00 for 2 years. Foreign—add $3 per year for postage.

Government Users of Federal Supply Schedule

DATA is available to active duty Government personnel at a 10% discount via the Federal Supply Schedule. Send requisitions direct to DATA Publications specifying FSS Stock Requisition Number 7630-576, Index No. 3011, FSS Section 76, Part II.

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Midwest: Charles Stearns, Jr., 35 East Wacker Drive, Chicago, Illinois (Tel.: Andover 3-2240)

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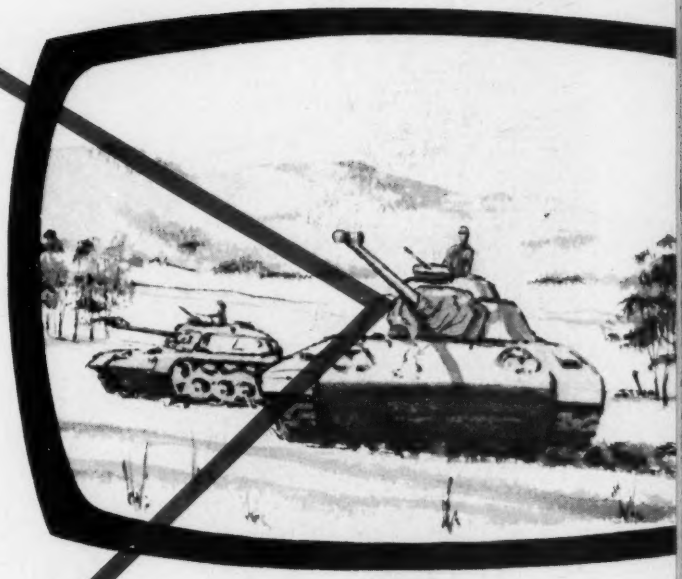
DATA PUBLICATIONS
1831 Jefferson Pl., N. W.
Washington 6, D. C.

MARK OF QUALITY THROUGHOUT THE WORLD

ADMIRAL

Low Light-Level TV Can See in the Dark



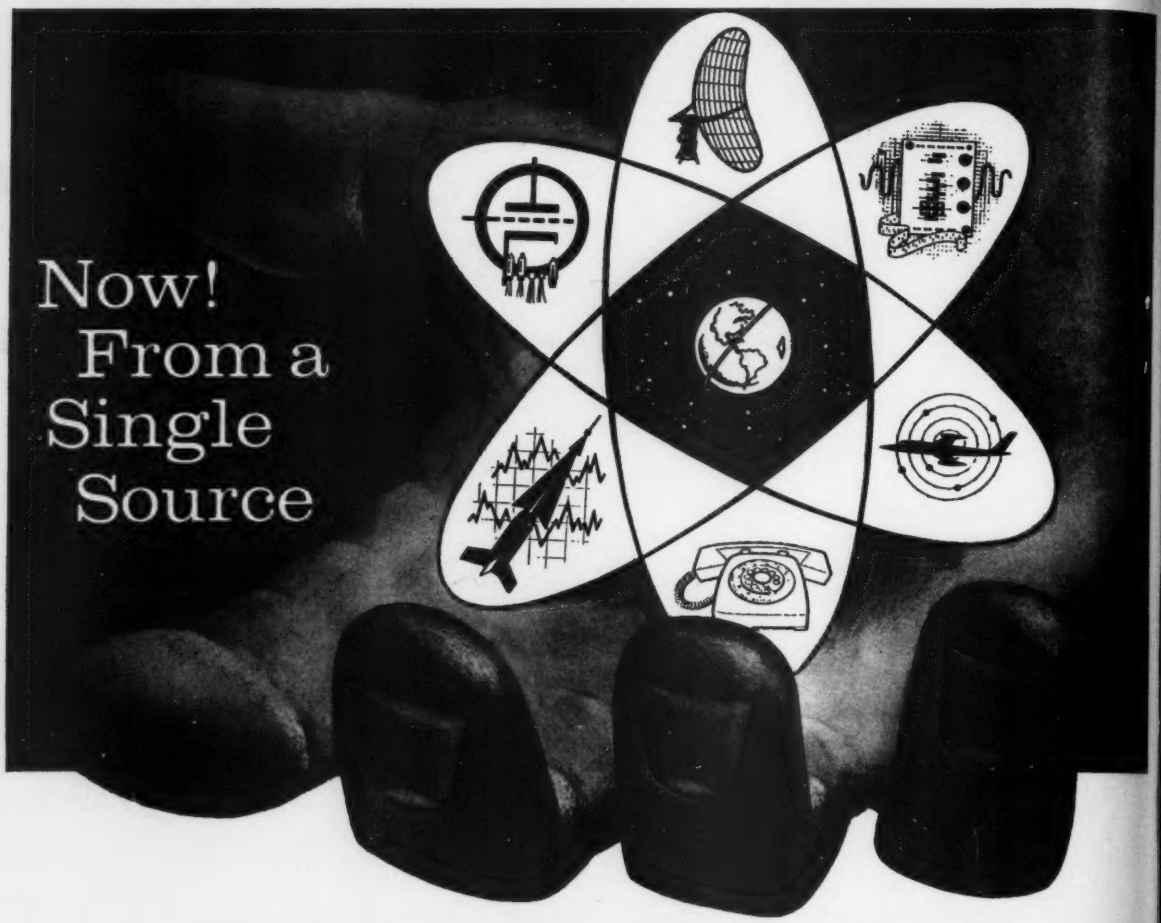
ADMIRAL "Low Light-Level" TV can actually see things in the dark that cannot be discerned with the human eye. Weighing only 31 pounds, this TV system is miniaturized and modularized to be easily fitted to cramped or changing installations. Using type Z-5294 image orthicon, the system produces a useable picture with only 10^{-6} foot candles of ambient light at the photo cathode . . . *this corresponds to an overcast moonless night with no sky glow.* And light from an ordinary match reveals as much to this ADMIRAL "Low Light-Level" TV as a man with 20/20 vision sees in the light of a 150 watt bulb.

Look to ***ADMIRAL****, the Leader of the Electronic Fleet, for* ***RUGGED, RELIABLE,*** *and* ***RESPONSIVE*** *electronic equipment for the Government.*

The Admiral Corporation
Government Laboratories Division
Chicago 47, Illinois

In Washington contact Mr. John Gilbarte, Suite 725, 1500 Massachusetts Ave., NW., Phone: ADams 4-3004

At Fort Monmouth contact Mr. Ray Gilbarte, 35 Maryland Ave., West Long Branch, N. J. Phone: CApitol 2-5076



New General Telephone & Electronics organization integrates communications, data processing, electronic display and other major defense systems.

Now under the single direction of Sylvania Electronic Systems' Engineering and Management Operation are all the technical skills and facilities of one of the world's leaders in communications and electronics–General Telephone & Electronics and its subsidiaries:

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For full information on how Sylvania Electronic Systems' Engineering and Management Operation can be of special service to you, write Sylvania Electronic Systems, a Division of Sylvania Electric Products Inc., Waltham, Massachusetts.

SYLVANIA **ELECTRONIC SYSTEMS**
Government Systems Management
for ***GENERAL TELEPHONE & ELECTRONICS***

GENERAL SYSTEM

DATAGRAM

DATA HAS FOURTH BIRTHDAY AND MOVES TO NEW QUARTERS

First issue of DATA magazine was published September 1956. Tying in with birthday celebration is DATA's move to new quarters. New space at 1831 Jefferson Place, N. W. in Washington is more than twice as large as facilities at Dupont Circle Building. New address is physically only one block away from previous Dupont Circle Building address. ///DATA/

SECOND PRINTING OF BUWEPS INTERIM REPORT

Popularity of DATA Interim Report on Bureau of Naval Weapons has precipitated second printing. This IBM typewriter-type report tells of changes in BuWeps since DATA BuWeps edition of February 1960. Booklet also features biog sketches of key officers, charts of individual departments, background on BuWeps formulation. Book has 24 pages text, 8 individual BuWeps department charts and large (36x24 inch) overall BuWeps staff directory locator chart. Price for package: $10. Order Number IRBW-14A. Send to Data Publications.

SUBCONTRACTORS NOTE: NEW AND VALUABLE SERVICE BY SBA

By contacting nearest field office, small manufacturers can have abstracts of R&D reports by prime contractors automatically sent to them in industrial categories of their choice. This new service is valuable in that many firms cannot carry expense of staff necessary to comb through many R&D reports coming out. Contact Small Biz Admin., Wash. 25, D. C. ///SBA/

NEW STANDARDS FOR CLEARING INDUSTRY PEOPLE FOR CLASSIFIED INFO

Revised standards and procedures for determining whether or not Defense contractors and their employees may be authorized access to classified info were issued 3 August 1960 by DOD. New Defense Dept. Directive #5220.6 of 28 July 1960 is entitled Industrial Personnel Access Authorization Review Reg. With new directive DOD now has authority to extend coverage of its industrial security program to NASA, FAA and other non-DOD activities. Also, DOD field reps will have rights to inspect company documents and to cross-examine witnesses. ///DOD 883-60/

AUXILIARY SHIBOARD FUEL TANKS

COMINPAC is experimenting with rubber collapsible auxiliary fuel tanks to increase range. Additional fuel capacity eliminates burdensome handling of packaged fuel as well as drum storage. Filled rubber tanks are lashed to deck. When empty tanks roll up and stow away. ///BuSandA/

ARMY ENGINEERS DEVELOP FILTER-SEPARATOR FOR AVIATION FUEL

Lightweight portable filter-separator removes water and solid contaminants from aviation and jet fuel ... expected to materially reduce hazard of engine failures occurring in light Army aircraft as result of contaminated fuel. Prototype was fabricated by Warner Lewis Div. of Fram Corp. //'ERDL-Belvoir,

ARMY QM RESEARCH FACILITY TO BE BUILT IN MASS.

Quartermaster Research Facility, designed for use in connection with Army's irradiated food program, will be built at QM's R&E Center at Natick, Mass. This research facility will be geared directly to needs of recently revised 6-yr. $5 million irradiated foods R&D program. ///Army QM/

Feature Editorial

by Martin Caidin for DATA

NO MATTER HOW YOU DO IT

"The ultimate goal of war," rumbled von Clausewitz, "is to make the enemy change his mind."

The strategic simplicity intrinsic in this statement is obvious, but perhaps not equally as apparent is that this is primarily a task of communications. The rub in this logic is that anyone can define the means with which to communicate.

It can be a message in the accepted sense of the term—an ultimatum delivered by radio wave, by undersea cable, the printed page, or diplomatic paper. Whatever the means, be it written, printed, oral, it is a message.

TRUTH NOT AS IMPORTANT AS IMPACT

It is no less so if the message is implied, and communications has developed a masterful science out of the art of *not* saying what you mean, but losing nothing in your opponent "getting the message." The current vogue in this communications science is popularly known as "rocket rattling," and our good friend Kruschev has worn thin the international mediums used for the transmission of his statements—whether they be true or not is not the point.

There is something very implicit in the close-range motion of a gun pointed at you—the message is hardly lost. There is a message in the chittering sound of a rattler that is far more effective than the cry of "Don't move!" There is a message in the swelling rumble of anger of a mob; in the high-pitched shriek of tires rubbing violently against macadam; in the gut-sinking whine of an aircraft engine reaching a sonic level that fairly shouts of impending disaster.

They are, all of them, communications—and the symbols of communications. The master of this medium invariably becomes the master of the people around him, for a message need not be logical, or truthful; it is effective if it is presented in a fashion that will produce physical results. Indeed, truth could hardly mean less. And if you wish to dispute this, then consider if you will the "Aryan superiority" of the Germans, and the "divine inspiration and mission" of the Japanese.

Or the implicit belief in the fable that "one American is worth six of anyone else," or, "our defenses are impregnable." That last message has caused more grief than any other statement in the history of man.

All this emphasizes, of course, that the building fabric of our nation, our society, of everything and anything we do—locally, nationally, internationally—is solely the fabric of our communications. We do not need truth or logic in order to communicate—only a means of transmitting the message.

Similarly, the web by which any military organization exists, functions, and serves any kind of purpose at all, is the effectiveness in all respects of its communications. Take any military force and by some form of sorcery strike from existence its accepted, functioning communications—and your group of magnificiently armed and equipped men will be nothing more than helpless louts.

BATTLES WON BY KNOWING ENEMY COMMUNICATIONS

More battles have been won by knowing the communications of the enemy than by the force of guns brought to bear. The Battle of Midway in June, 1942 is perhaps an outstanding case in point. The American fleet was outnumbered and outgunned in terms of ships, planes, and men—and what it had in the way of combat aircraft, except for the dive bomber, amounted to criminal inferiority. Yet because the Japanese had to communicate with their fleet at sea in order to coordinate the incredible tangle of modern arms, they had to include in their messages the details of their positions, plans, movements—which, in the long run, amount to hopes that may or may not see reality.

In the respects mentioned, we were inferior. But the enemy's communications, which we could intercept, decode, evaluate, and act upon, transformed our deficiencies into a smashing victory. Without this knowledge —this intercepted communications—history might well have been written in a grimmer tone.

Revolutions in our means of communications have been major turning points of history. The historical fulcrum of the telephone wire and the cable, the wireless, then visual long-distance video; all these speak for themselves. The development of the printing press amounted to nothing less than a violent communications explosion, with all the attending upheavals and pressures brought to bear upon an international society that reeled from its impact and was never again to be the same.

We are living today in what appears to be a stunning revolution in communications—witness the U.S. Army's *Project Score* with ATLAS 10B, the Russian space-communications experiments, and most notably in the headlines, the reflectivity of that giant sphere of Mylar, ECHO I.

CHANGE IN MEANS OF COMMUNICATIONS

Actually, however, all these new steps do not represent so much a change in communications as they do a change in the *means* of communications. They are all of them extensions of existing technical and electronics means of sending and receiving messages. Yet they will affect the fabric and the conduct of our society because of their refinement in our communicating with one another, and adding enormously to the *volume* of our communications within a given space and time. It is simple cause and effect.

Where to from here? There is not a single item, a single undeveloped potential, in all the modern-day miracles that men of science have not anticipated for a long time and, in truth, deplored their sluggishness of arrival. You can go back to before the time of the rocket gaining anything more than the raucous laughter of audiences come to see rockets explode and their inventors shake with fear and anger; you can go back to when electronics was an unrealized thought—and you will find the forecasts of the "miracle" means of communications.

What Tomorrow holds in store for us appears to be so amazing that the majority of people are immediately prone to scoff and sneer—and add some more of the raucous laughter that has echoed down the pages of history to announce the presentation of any radical approach, to *any* field of endeavor.

ESP IN COMMUNICATIONS

Communications scientists—in the military and out of it—have quietly been exploring, among other avenues, the possibilities of extra-sensory perception for use in the defense operations structure of the United States. There did not exist several years ago, and quite possibly there may not exist today, any deliberate application of extra-sensory perception. But whatever the state of progress in terms of charts and graphs, the door has been flung wide open—if for no other reason than brilliant scientists have kept open another door . . . their minds.

The aspects of extra-sensory perception under question are the abilities of certain people to transmit thought from mind to mind, and to reproduce, or only to identify, symbols or words that become specific messages. Some of the nation's outstanding scientists have devoted their time and energy to this fascinating new line, and they are convinced that ESP is a specific, identifiable human ability. Among the names—the brilliant mathematician Dr. S. G. Soal of London, and Dr. H. J. Rand of the Rand Development Laboratory.

Of what has been learned of these research efforts, there seems to be no immediate solution to bring ESP under deliberate "conscious control," and that its effects so far are more promising than demonstratable on a repetitive basis.

While there is no direct relationship between the two as working projects (or there wasn't three years ago, anyway), a parallel effort into study of brain phenomena may produce unforeseen results. Scientists have plunged deeply into research that will allow electronic amplification of so-called "brain waves," which an Air Force officer quotes as being the "measurable low intensity electrical impulses that are released by the human brain with the object of transmitting messages."

Direct, specific, mental communications over long distances—this is the goal.

Is it possible? Hard-headed scientists say it is "inevitable." Other hard-headed scientists may be observed in fits of temperament as their Sacred Cow is profaned in such a manner.

Twenty-five years ago, one of the scientists who now receives the honors and laudits of the United States and much of the world stated flatly that nuclear energy, or even nuclear weapons, were a ridiculous fantasy unworthy of sober consideration. Another leading scientist (who now is a big wheel in Government research) hardly a decade past decried talk of push-button warfare, and spat that the intercontinental ballistic missile was a product only of deranged fellow-scientists and comic books that would never see reality.

But why go to such exotic extremes? Show me—anywhere—a forecast of the internal-combustion engine, the machine that changed the course of history more than any other.

—MARTIN CAIDIN

A brief message from the publisher:

This edition marks the fourth anniversary of DATA magazine. We are happy that this fourth anniversary issue features the U. S. Army Signal Corps, which is celebrating its 100th anniversary this year.

DATA has a debt to the Signal Corps. When we first started publishing, other activities were a bit reluctant to give us the necessary time and cooperation needed by us to fully describe and chart their organizational complexes. Wouldn't the giving of so much attention to one magazine constitute undue support and effort to one commercial publication? And besides, it takes a lot of time on the part of the unit's information officers to assist in the preparation of such information.

But the Signal Corps saw the giving of complete cooperation as the best way they could insure telling their story accurately and completely to a highly intelligent audience of Defense businessmen and military leaders who wanted the type of organizational and marketing information DATA promised to publish.

The Signal Corps was the first Government activity to provide a public information officer to DATA magazine specifically to aid in the preparation of the issue highlighting their activity. Other Government activities have since followed the Signal Corps' lead.

Clearly I and my staff cannot be experts on all Government activities. We can never have as deep a knowledge of the given unit as the information people and staff officers assigned there. With rare exceptions each issue of DATA featuring a given Government activity can only be as good as the support it receives from the activity itself.

—Murray Queen-Smith
Publisher,
DATA Publications

SEPTEMBER 1960 **data**

Volume 5 © *Queensmith Associates, Inc., September 1960* **Number 9**

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CONTENTS **Page Number**

Datagram 5
Editorial by Martin Caidin 7
Feedback (letters) 9
Signal Corps mission & funding 11
Signal Corps—Industry conferences 12
Signal Corps Organization and Activities 14
Datagraf charts of Signal Corps
Office of Chief Signal Officer 17
OSigO Procurement 18
U. S. Army Signal Supply Agency 19
USASSA Procurement 20
USASIMSA 21
R&D, Ft. Monmouth 23
Defense Marketing Data by Pat Thomas 26
Company Needs & Contacts 30
Datalog of missile, space & detection projects 31
Anecdata 36

ADVERTISERS **Page Number**

Emerson Radio C-2
Laboratory for Electronics C-3
DuMont Laboratories C-4
Admiral 3
Sylvania 4
Grumman 10
Philco 25
Studebaker-Packard 29

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DATA PUBLICATIONS

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NEXT MONTH IN DATA

The October 1960 issue of DATA features the U. S. Army Research & Development Program

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT AND CIRCULATION OF "DATA Magazine" published monthly at Washington, D. C. for September 1960.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher and Editor-in-Chief, Murray Queen-Smith, 1500 Mass. Ave., N. W., Wash., D. C.; Feature Editor, Martin Caidin, 44 Netto Lane, Plainview, New York; Managing editor, Walter Seager, 2147 O St., N. W.; Business manager, Daniel Worley, 1915 Kalorama Rd., N. W., D. C.

2. The owner is: Murray Queen-Smith.

3. The known bondholders, mortgages, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securties are: NONE.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee of in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

MURRAY QUEEN-SMITH
Publisher

Sworn and subscribed to me this 13th day of September, 1960.

MISS EDITH MITCHELL
Notary Public, District of Columbia
Commission expires Feb. 29, 1964.

• JULY ASW EDITION

SIRS:

I have read your July issue on the ASW Program with great interest but wonder if you could tell me why Admiral John S. Thach and his staff were omitted from the DATAGRAFs in that issue.

Nathaniel R. Kidder, President
KIDDER AND COMPANY
Cambridge, Massachusetts

Ed.—Admiral Thach and his forces are operational units. DATA has been trying to stick pretty close to its chosen field of research and development. We do plan, however, to try to work op units into our next ASW book.

SIRS:

Correction please. In your ASW glossary in the July issue you stated that the most popular sonobuoy now in the fleet is the SSQ-3. I believe the most popular sonobuoy now in the fleet is the SSQ-23.

Dr. Ernest A. Keller
Associate Director of Engineering
Motorola, Inc.
Chicago, Illinois

Ed.—Sorry about this slip. The SSQ-23 is the most popular sonobuoy now in the fleet.

• DEFENSE MARKETING DATA

SIRS:

To add my comments to any which may have been made already in reference to your new Defense Marketing Data and the articles by Patrick Thomas, let me say that these are extremely interesting and valuable. I hope that you will continue this new section.

St. Clair Bromfield, Jr.
Royal McBee Corporation
Washington, D. C.

• JUNE AMC EDITION

SIRS:

We were very pleased to read your June issue of DATA dealing with the Air Materiel Command. Needless to say, it is always gratifying to members of the Air Materiel Command to see its story—and we feel, its success—in print.

We also noted with pleasure the confirmation of your plan (pg. 16) to feature the subject of Air Force electronics in the November 1961 edition The organizations you listed in parenthesis were "Rome ADC and AFCCDD." We would like to note that Rome is the home of the Rome Air Materiel Area, AMC, and the Rome Air Development Center, ARDC. It is represented at Hanscom Field, Bedford, Mass., in the ADC Command and Control Systems Office. At Hanscom is also to be found AMC's Electronic Systems Center. We recognize that you couldn't list every organization related to Air Force electronics in the limited space but we are very interested in insuring that the word about ESC is spread afar.

We are, therefore, taking the liberty of attaching a few items about ESC and the Hanscom Complex for your interest. Possibly they can be of assistance to your writer as source material for the November '61 edition.

Again, our compliments on the June edition of DATA. I am sure Air Force and industry readers throughout the country learned a great deal about AMC from your well written, attractively presented article.

Major Philip S. Cox, USAF
Information Officer
AMC Electronics Systems Center
Bedford, Massachusetts

Ed.—Thank you, Major Cox, for your kind words, and be assured that ESC will be a vital part of our November 1961 Air Force Electronics edition.

SIRS:

Please accept my belated congratulations on the June issue of DATA. Although the office of the Deputy Inspector General for Safety is only a tenant at Norton AFB, the fact that Norton is a prime AMA of the Air Materiel Command made the issue particularly interesting reading to a large number of our people here.

I noticed in your inside front cover that DATA schedule for 1960 is filled. I would like to call your attention to the fact that the office of the DIG/Safety has recently been completely reorganized and components thereof moved from Washington to Norton. While this organization in itself certainly doesn't justify a full issue of DATA, I do think it would be of sufficient interest to your readers to warrant inclusion in one of your 1961 editions.

If you are interested I would be most happy to bundle up a package of information to give you.

Francis R. Fowler
Chief, Information Section
Deputy Inspector General for Safety
Norton Air Force Base, California

Ed.—Sounds good. Let's see what readers say.

• GENERAL COMMENTS

SIRS:

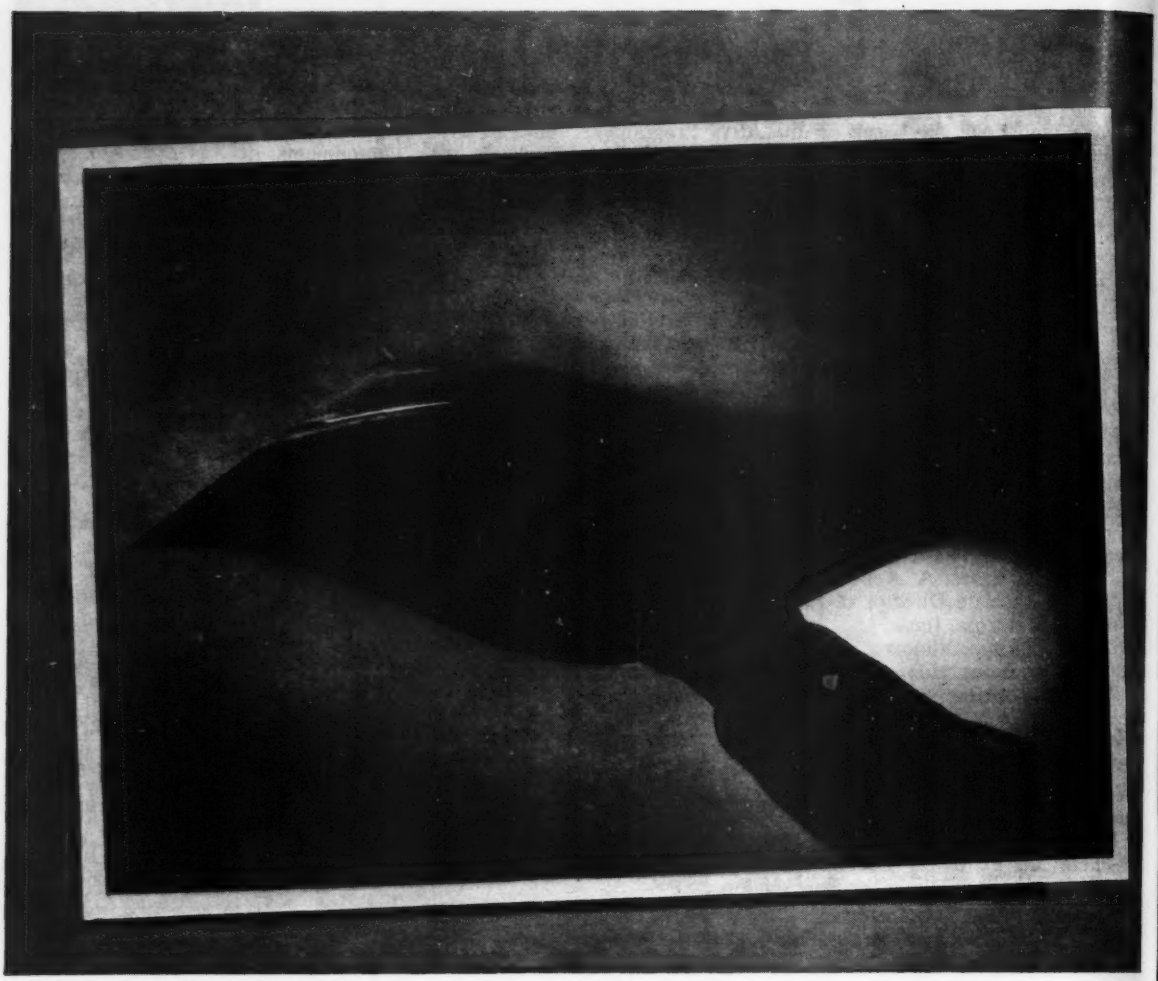
We notice with interest that your publication highlights a different Defense activity each month.

As this activity serves as the inventory control point and purchasing office for the world-wide Naval Aeronautical Supply Organization, we thought that perhaps you may want to do a series on the Aviation Supply Office.

I have taken the liberty of enclosing some literature concerning this office's mission and accomplishments, to familiarize you with the important role this activity plays in the Defense Department.

Ray Heim
Public Information Officer
Aviation Supply Office, U. S. Navy
Philadelphia 11, Pennsylvania

Ed.—We did a brief feature on ASO in our April Navy Supply issue, Ray. If readers want a special ASO feature, however, we will be happy to prepare and publish it.



This photo of Grumman was taken at a speed of Mach 8

This is a vapor screen photo of hypersonic flow (Mach 8) about a Grumman research model, at Arnold Engineering Development Center. Expansion region above the body is discernible along with the separated region adjacent to the surface and the reflection of the light screen on the surface.

The photo shows something else, too: Grumman is on the move in the field of hypersonic aerodynamics. Add to that—continuing design and development work on orbiting observatories, unmanned scientific satellites, manned space craft, and re-entry vehicles, to name a few.

Advanced Ideas Grow Into Reality at...

GRUMMAN

AIRCRAFT ENGINEERING CORPORATION

Bethpage · Long Island · New York

U. S. Army Signal Corps Mission

- Provides the communications by which the commander exercises command control of combat operations.
- Procures, distributes, and maintains communications, electronic and photographic equipment.
- Conducts extensive programs for the research and development of new equipment and material and of new tactics and techniques.
- Evaluates, tests, and integrates communications, electronic and pictorial systems and devices—including such new fields as combat surveillance, electronic warfare, and automatic data processing.
- Provides personnel and training of communications and electronics specialists to man the command control systems of the Pentomic Army.
- Establishes and operates the global communications networks, including the Alaska Communication System.
- Furnishes modern means of transmitting data in support of the Army's logistic activity.

Budget

U. S. Army Signal Corps FY 61 Funding Programs

- **Research, Development, Test and Evaluation**
  $162.9 millions
- **Procurement of Equipment and Missiles**
  $175.0 millions
- **Stock Fund Items**
  $94.8 millions
- **Operation and Maintenance**
  $220.2 millions

Signal Corps R & D Mission and Washington Area R&D Contacts

Signal Corps Research and Development Mission

Plans, coordinates, schedules, and executes the Chief Signal Officer's research, development and combat development programs, and coordinates the Chief Signal Officer's combat development program with USCONARC. This responsibility includes all activities and functions concerned with basic and applied research, equipment and systems development and testing, the development of tactical and strategic applications and requirements and the coordination of development of material, personnel, and organizational requirements pertinent to the introduction of new equipment systems, sub-systems, and components. Provides Systems Manager for Signal air defense support, missile support and electronic warfare systems. Exercises staff supervision over the functions of: U. S. Army Signal Research and Development Agency; U. S. Army Electronic Proving Ground; U. S. Army Signal Intelligence Agency; the U. S. Army Signal Air Defense Engineering Agency and U. S. Army Signal Missile Support Agency.

	Location Pentagon Rooms **Munitions Building Room	Extension*
CHIEF		
Brig Gen John C. Monahan	2E 238	79378
DEPUTY CHIEF		
Col J. Wilson Johnston	2E 238	79378
CHIEF SCIENTIST for R&D for CSigO		
Dr. Craig M. Crenshaw	2E 288	79681
EXECUTIVE OFFICER		
Lt Col George E. Green	2E 238	79376
ADMINISTRATIVE OFFICE		
Chief—Olga Gazella	2E 239	79376
SIGNAL RESEARCH OFFICE		
Chief—Col Hugh A. Vest	4614**	67769
AVIONICS & SURVEILLANCE BRANCH		
Chief—W. A. Stambaugh	BE 1028	56937
COMMUNICATIONS BRANCH		
Chief—Robert F. Brady	BE 1029	73144
PROGRAMS & MANAGEMENT OFFICE		
Chief—Col John A. Geddes	2E 243	56831
COMBAT DEVELOPMENT BRANCH		
Chief—Arthur W. Reese, Lt Col	2E 279	71957
AIR DEFENSE & COUNTERMEASURES BRANCH		
Chief—John J. Kelleher	4621**	67711

* When calling from outside the Department of Defense dial OX as a prefix.

U.S. Army Signal Corps— Industry Procurement Conferences Scheduled at Fort Monmouth

A series of three repeated two-day U.S. Army Signal Corps-Industry Procurement Conferences to be held at Fort Monmouth, New Jersey, this fall, have been announced by Brigadier Gen. Elmer L. Littell, Commanding, U.S. Army Signal Supply Agency (USASSA), Philadelphia, Pa. Dates for the conferences are 29-30 September, 27-28 October, and 16-17 November 1960.

Planned and organized in cooperation with the U.S. Army Signal Training Command and Fort Monmouth, Fort Monmouth, New Jersey, commanded by Major General William D. Hamlin, the conferences are designed for the purpose of developing a better understanding by industry of the organizations, missions, and operations of the activities located at Fort Monmouth which relate to the procurement of Army Signal equipments. As such, they are expected to be of maximum interest to the electronic and communication industries.

AGENDA

The agenda has been prepared for optimum interest to industry personnel at management levels in areas of military marketing and engineering, R&D, and supply contracting. Substantially the same agenda will be used for the three conferences for the purpose of extending participation to a large number of firms. In order that a maximum number of firms may be accommodated, it is planned that not more than two spaces for any conference will be allocated to the same company. Space allocations are being made to industry by the Director of Industry Relations, USASSA, and by the regional procurement offices.

ALLOCATION OF SPACES

Special allocation of spaces for trade associations have been made to the Electronic Industries Association, the National Electrical Manufacturers Association, the National Security Industrial Association, and the Western Electronic Manufacturers Association.

While costs of transportation, hotel accommodations, and meals are to be borne by the conferees, special arrangements have been made for accommodations at reduced rates at a nearby motel, with transportation to the conferences furnished by the Fort Monmouth Garrison.

Here's what industry leaders think of these conferences . . .

SIRS:

The Philco Corporation is convinced that frequent meetings between Government and Industry personnel, not only to get acquainted, but also to learn about and discuss mutual problems are essential to the successful handling of today's difficult national defense problem.

We are proud to be among those companies who have maintained a Signal Corps-Training-with-Industry program which is devoted to educating key personnel from both sides on how the other operates. We have supported this type of activity because of our belief in the beneficial results.

The program of Signal Corps-Industry Conferences scheduled for this Fall are another means by which this all-important collaboration between the Government and Industry can be promulgated. We intend to support this program by sending certain of our key personnel to participate and we believe that all companies doing business with the Signal Corps will benefit from the program planned.

C. PAUL YOUNG
Director, Government-Industry Relations
Philco Corporation

SIRS:

We, at Stromberg-Carlson, are proud to have had a part in the design and supply of equipment with which the Corps has achieved such an outstanding record. We applaud the environment in which new ideas have flourished and the sound approach being taken to Communication Systems developments by the Signal Corps.

We enthusiastically endorse the plans for the Signal Corps—Industry Conferences to be held at Fort Monmouth, for we are sure that they will prove to be of great work to all who participate in them.

S. R. CURTIS
Senior Vice President
Stromberg-Carlson Company

SIRS:

The Fort Monmouth Conferences will provide contractors with an excellent opportunity to become familiar with the organization of the Signal Corps, its various procurement agencies, and the material requirements of the various divisions.

This series of conferences should prove beneficial not only to new contractors, who desire to manufacture Signal Corps items, but also to present suppliers, who wish to offer their executives and sales personnel current, first-hand information on the functions and requirements of the Signal Corps.

ROBERT C. SPRAGUE
Chairman of the Board
Sprague Electric Company

SIRS:

The Signal Corps has again shown great foresight and leadership in scheduling the forthcoming industry conferences which represent a procurement and quality control policy wholeheartedly endorsed by the entire electronics industry.

The comprehensive agenda and the scheduled participation by top Signal Corps officers attest to the broad scope and importance of the conferences. It is appropriate that they are being held at Ft. Monmouth, the "birthplace of military electronics," during the Signal Corps' 100th anniversary year.

ROBERT S. BELL
President
Packard Bell Electronics

SIRS:

As a prime contractor with many years association with the military, the Martin Company looks on the Signal Corps Industry Conferences with a great deal of favor and appreciation. It is efforts of this nature on the part of the Signal Corps that lead to better understanding and an atmosphere of cooperative effort, so essential for the efficient and timely development of the advanced systems required by today's modern army.

It will be our pleasure to participate in these conferences with the knowledge that much will be contributed to our understanding of Signal Corps organization, functions and procedures . . . information we consider indispensable to the industry members of this nation's defense team.

G. T. WILLY
Vice President and General Manager
The Martin Company
Orlando Division

SIRS:

The Signal Corps-Industry Conferences being held this fall represent a most important step in a series of many taken by the Signal Corps to implement its philosophy of close cooperation with Industry in solving mutual problems. We at RCA welcome these conferences, as they demonstrate the continuing vitality of the Signal Corps and its philosophy of facing the nation's defense problems openly and squarely.

The electronics industry has witnessed over the last eight years the unfolding of the Signal Corps Program of Army-Industry Partnership. One of the first steps was a Signal Corps questionnaire circulated among electronic companies in which industry was invited to say how it thought the Signal Corps compared with other procuring services and what it could do to improve. There followed orientation and problem-solving efforts: policy discussions with trade associations, visits by engineering management to Army maneuvers, reciprocal training programs, exhibitions by SRDL of R&D progress. Recently, in recognition of Industry's need for planning data, overall budget figures for the FY 1960 by budget category were released as soon as they were available. The conferences being held this fall are another important aspect of the Signal Corps Program.

A. L. MALCARNEY
Executive Vice President
Defense Electronic Products
RCA

SIRS:

We welcome the opportunity and comment on the Signal Corps-Industry conference.

In this complex era of technological growth, which requires, by its very nature, that industry display an increasingly greater degree of initiative in development of new ideas and equipments, the relationship between customer and supplier is of the utmost importance—requiring close teamwork from top management through the various levels of marketing, engineering and research and development.

For these reasons we consider the Signal Corps-Industry joint meetings at Fort Monmouth invaluable and only wish they could be held with increasing frequency. Conferences of this nature strengthen substantially the customer-supplier relationship, providing industry with a more intimate understanding of Signal Corps problems and requirements —an understanding that unquestionably results in prompt delivery of highly reliable advanced equipments as required by the Signal Corps.

More specifically, if you tried to put the "human element" into specifications or work statements, volume after volume would be required. What are the long-range plans and requirements? Are our own research expenditures consistent with them? What is this engineering manager's concept of reliability? Is it identical with that of his predecessor, or his successor? Do specifications always tell us that operators of certain communications equipment must wear heavy gloves and would prefer large knobs for tuning? These are just a few of the human factors that frequently aren't documented in contractual literature and can only be understood through face-to-face intimate relationships—relationships that are vital if we are to meet the challenges that these times have thrust upon us.

The conference at Fort Monmouth gives us the opportunity to obtain the needs of the Signal Corps first hand and to be able to ask our questions in an informal face-to-face relationship.

HENRY LEHNE
Senior Vice President
Sylvania Electronic Systems

U. S. Army Signal Corps Industry Conferences
Ft. Monmouth, N. J.

AGENDA: 29-30 SEPTEMBER, 27-28 OCTOBER, 16-17 NOVEMBER, 1960

FIRST DAY

0930-1000 Registration: Coffee
(Motel Lobby or Myer Hall)

1000-1005 Welcome
Major General William D. Hamlin, Commanding General, U. S. Army Signal Training Command and Fort Monmouth, Fort Monmouth, New Jersey
(Myer Hall Auditorium)

1005-1010 Opening Remarks
Brigadier General Elmer L. Littell, Commanding General, USASSA, Philadelphia, Pa.

1010-1025 A. Fort Monmouth Activities
Mr. J. P. Hoffman, Information Officer, U. S. Army Signal Training Command and Fort Monmouth

1025-1045 B. Relationship between USASSA and Fort Monmouth activities
Mr. Morton Ullery, Comptroller, USASSA, Philadelphia, Pa.

1045-1055 Role of U. S. Army Signal School
Brigadier General C. M. Baer, Commandant, U. S. Army Signal School
(Signal School)

1055-1150 C. Department of Specialist Training
Colonel C. P. Lerner, Director of Training, U. S. Army Signal School
(Tour of U. S. Army Signal School)

1200-1315 Lunch (Dutch treat)
(Scriven Hall)

1330-1340 Introductory Comments to R&D
Colonel H. McD. Brown, Commanding Officer, USASRDL
(Hexagon Building Auditorium)

1340-1415 D. R&D Presentations
Chief Scientist & Department Directors, USASRDL

1415-1435 Coffee Break

1435-1600 R&D Presentations (Continued)

1600-1815 Free Time

1815-1915 Social Hour (Dutch Treat)
(Gibbs Hall)

1915 Dinner
(Gibbs Hall)

SECOND DAY

NOTE: Excepting Lunch and Tours, the program following will be conducted in the Hexagon Building Auditorium.

0900-0915 USASRDL—Industry—USAEPG* Relationships
Colonel I. R. Obenchain, Chief, Technical Staff, USASRDL
*(U.S. Army Electronic Proving Grounds, Fort Huachuca, Arizona)

0915-0945 Film: "R&D Progress Report—1960"
(USASRDL)

0945-1005 Enroute to Deal Area

1005-1035 Tour Astro-Observation Center
(USASRDL)

1035-1055 Enroute to Diana Area

1055-1125 Tour Tiros and Diana Facilities
(USASRDL)

1125-1150 **Enroute to Lunch Destination**

1150-1250 Lunch (Dutch Treat)
(Scriven Hall)

1300-1315 Enroute to Hexagon Building

1315-1320 Introductory comments to R&D contracting
Colonel L. M. Reiser, Commanding Officer, USASSA, FMPO

1320-1445 E. R&D Contracting Presentations
USASSA, FMPO Staff Personnel

1445-1500 Coffee Break

1500-1510 Introductory Comments
Colonel H. E. Price, Commanding Officer, USASIMSA

1510-1525 F. Production Engineering
Mr. William J. Laverick, Director, Prod. Engrg. Dept. USASIMSA

1525-1540 G. Maintenance Engineering
Mr. Ralph Iannarone, Director, Maint. Engrg. Dept., USASIMSA

1540-1550 H. Publications Engineering
Mr. James H. Creutz, Dep. Director, Pub. Engrg. Dept., USASIMSA

1550-1620 I. Coordinated Military Electronic Specifications
Colonel Murray A. Little, Director, ASESA

1620-1700 **Panel Discussion (Question and Answer Period)**
Moderator: General Littell

1700-1710 Concluding Remarks
General Littell

PROGRAM COORDINATORS:
Mr. J. P. Hoffman, Information Officer, Fort Monmouth, N. J.
Mr. John F. X. Mannix, Industrial Liaison Engineer, USASRDL
Mr. Clinton Kaplan, Director, Industry Relations, USASSA, Philadelphia
Mr. Charles J. Foley, Chief, Small Business & Industry Liaison Office, USASSA FMPO

SCHEDULE COORDINATORS: Mr. J. P. Hoffman and Major C. W. Johnson, Jr.

NOTE: Letters A to I above refer to following Fact Sheets that will be given to participants at the conference.

Headquarters, U. S. Army Signal Supply Agency
225 South 18th Street
Philadelphia 3, Pennsylvania
Telephone: Kingsley 6-3200
Brig. Gen. Elmer L. Littell, Commanding
(to be succeeded by Brig. Gen. Charles S. Hays on or about 1 Oct. 1960)

Practically all production and industrial preparedness measure contracts are placed by the Headquarters, U. S. Army Signal Supply Agency (USASSA), including first time production upon completion of the development phase, and technical representative contracts for the maintenance of field equipment.

A bid display board is maintained. An invitation to get on USASSA's bidders' lists is extended to all interested contractors.

Midwestern Regional Office
U. S. Army Signal Supply Agency
400 S. Jefferson St.
Chicago 7, Illinois
Telephone: ANdover 3-0234
Colonel Turner W. Gilman, Commanding

This office has sole procurement responsibility for approximately 40,000 items of communication and electronics equipment covering 23 major commodity groups, including telephone, teletype, electrical components and hardware, antennas, photographic equipment and supplies, meterological equipment, waveguides, and related equipment. It is responsible for contract administration, industrial preparedness and quality assurance activities for an area comprising twenty states. Over 1700 contracts having a total value of approximately 300 million dollars are currently being administered. It maintains a bid display facility, displaying all bid solicitations generated at Headquarters, USASSA, and other Army Signal Corps purchasing offices.

Western Regional Office
U. S. Army Signal Supply Agency
125 South Grande Avenue
Pasadena 2, California
Telephone: Sycamore 6-0471
Colonel Brookman R. Painter, Commanding

The Western Regional Office is responsible for the administration of Army Signal Corps contracts placed with firms within the 11 state area which includes Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. However, it does not have an awarding mission. Administration includes modifications, pricing, expediting and the maintenance of government property records. It also has quality assurance responsibilities on the west coast. West Coast suppliers are encouraged to visit this office for assistance in contract clarification, for guidance in getting on the bidders' lists, and for counsel in submitting bids on current solicitation. A bid display board is maintained showing all current Army Signal Corps procurements.

FABRICATED by Motorola, new Signal Corps weapons carrier mounted radio central provides radio service to battle areas similar to conventional telephone service.

ULTRA-SENSITIVE electronic ear developed by Hughes Aircraft for Signal Corps shows off part of its internal maser assembly in hands of technician. Special 2-carat synthetic ruby inside maser is cooled to 452 degrees below zero (F). At this temperature jewel can detect and amplify almost imperceptibly faint radio signals.

U. S. Army Electronic Proving Ground
Procurement Office, U. S. Army Signal Supply Agency
Fort Huachuca, Arizona
Telephone: GLadstone 8-3311
Lt. Colonel R. E. Covington, Commanding

Responsibility for placing and administering special equipment contracts and contracts for services and studies as required for performance of the mission assigned to the U. S. Army Electronic Proving Ground. Purchases commercial type signal equipment and supplies in support of U. S. Army Missile Support Agency, White Sands, New Mexico for which local procurement authority exists.

Contractors engaged in individual private R&D programs on equipments and systems having application to Army needs are encouraged to submit unsolicited proposals to the **USAEPGPO, U. S. Army Signal Supply Agency, P. O. Box 748, Fort Huachuca, Arizona.** Be assured that your proprietory rights will be protected and that ensuing contracts, if warranted, may be sole source for further development or in-service test if within the scope of current procurement regulations.

U. S. Army Signal Supply Agency
Ft. Monmouth Procurement Office
Fort Monmouth, New Jersey
Telephone: LIberty 2-4000
Extension 51115
Colonel L. M. Reiser, Commanding

Processes prime contracts for research and development in the fields of Communication, Radar, Surveillance, Electrical and Electronic Components, and other related fields. These procurements are normally initiated by the U. S. Army Signal Research and Development Agency. The Support Purchases Branch processes certain electronic supply contracts for the Agency as well as items of a "housekeeping nature" for the U. S. Army Signal Training Command at Ft. Monmouth, N. J.

To assist the Contractor, interviews are held to instruct and inform him of function of the procurement office and how he might proceed to do business.

In order to place the contractor on the bidders' list for Research and Development, a copy of "Prospective Contractors' Guide" together with a field of interest form is furnished. A Bidder's Mailing List Application, Standard Form 129, is required to register in the Bidders' List of Support Purchases Branch.

When a requirement for a particular type of service or commodity arises, a properly registered firm is given consideration as a potential source of supply.

Wherever and whenever possible appointments are arranged to bring together the contractor and interested technical personnel of the U. S. Army Signal Research and Development Laboratory to permit the contractor an opportunity of presenting his services or commodity to those most interested or in need.

All available current literature is furnished to the contractor to assist him obtain consideration as a potential supplier of the Army Signal Corps and other U. S. Government Agencies.

The office processed procurements during FY 1960 amounting 176 million which includes all R&D, service test, and support purchases for R&D program at Laboratories.

Washington Procurement Office
U. S. Army Signal Supply Agency
Main Navy Building (Munitions Building), Room 2603
Washington 25, D. C.
Telephone: OXford 6-7802
Captain C. F. Capps, Commanding

As a special mission procurement activity, this office serves agencies located at the seat of government. It does NOT place production contracts nor contracts involving items of millitary specifications. It primarily buys standard commercial communications equipments and materials, as well as procurements for technical services, installations of fixed-plant communications equipment and equipment leases.

Other Army Signal Corps buying offices not part of U. S. Army Signal Supply Agency.

U. S. Army Alaska Communications System
550 Federal Office Building
Seattle 4, Washington
Telephone: Mutual 2-3300
Colonel George F. Rogers, Commanding

Contracts for installations and maintenance of the Alaska Communications system.

Army Pictorial Center
35 - 11 Thirty-fifth Avenue
Astoria, Long Island City, New York
Telephone: AStoria 4-3100
Lt. Col. Robert B. Randle, Commanding

Places contracts for television and photographic equipment and supplies, film productions, personal services and commercial adaptations required by the Army Pictorial Center.

WHOM TO SEE:

For general counsel, ask to see the Small Business Specialist or Industrial Relations Officer, who will be pleased to assist you. For specific contract matters the receptionist at each office will gladly make arrangements for you to visit with the Commodity Manager, Contracting Officer, or individual who can best help you.

OTHER SIGNAL CORPS ACTIVITIES OF SPECIAL INTEREST

U. S. Army Signal Materiel Support Agency (USASIMSA)
Coles Area, Fort Monmouth, New Jersey
Telephone: LIberty 2-4000
Extension 81111
Colonel Howard E. Price, Commanding

The U. S. Army Signal Materiel Support Agency, as its primary mission, provides technical support toward the procurement and production of equipment required to perform the Army Signal Corps' field mission, and toward the operation and maintenance of this equipment in the field.

Commonly referred to as USASIMSA, the U. S. Army Signal *Materiel* Support Agency, was established on July 1, 1960 as a result of a reorganization. It represents a consolidation of agencies previously known as the U. S. Army Signal *Equipment* Support Agency (USASESA) and the U. S. Army Signal Publications Agency whose functions it absorbs.

In its procurement and production support mission, USASIMSA serves as the technical representative of the Contracting Officer in establishing technical requirements for equipment to be procured and in evaluating preproduction samples, and provides technical assistance to manufacturers in the production of this equipment.

Under the staff and technical supervision of the Procurement and Distribution Division, Office of the Chief signal Officer, USASIMSA has over 1150 engineers, technicians, and administrative and contractual personnel performing the many tasks required to accomplish production and maintenance support and insure the highest possible standards of production of Army Signal Corps equipment.

Each year, over 2500 manufacturers who have received Invitations for Bid on communications and electronic equipment visit USASIMSA to examine models of the equipment to be procured and to seek assistance in solution of their production problems.

If the work being done by USASIMSA covers areas in which you are facing problems—if you feel that the Agency could be of assistance in resolving those problems—a call or a letter from you is all that is required because . . .

at USASIMSA, support is our business

R&D West Coast Office
U. S. Army Signal Research & Development Agency
(USASRDA)
75 S. Grand Ave.
Bldg. 6
Pasadena 2, California

The R&D West Coast Office provides coverage of USASRDA research and development contractual effort within the west coast area to ensure adequate technical guidance and progress, and assists all organizational elements of the Chief Signal Officer in coordinating their activities on the west coast.

It also provides guidance to commercial organizations and scientific institutions engaged in USASRDA research and development.

The West Coast R&D office furnishes technical data to USASRDA and interested Signal Corps organizations on facilities and technical abilities of contractors in the west coast area.

It serves as the focal point in the west coast area for USASRDA public relations and the interchange of technical information with technical personnel and contractual concerns, academic and scientific institutions and other service organizations.

Assistance to various Government contracting offices in the west coast area by performing suppression tests wherever MIL specifications are cited and the providing of engineering services to the various contractors in the design and testing of radio interference suppression systems are other West Coast R&D office services.

Upon request the West Coast R&D office supervises acceptance tests of equipment being developed by west coast contractors.

AN/UPD-1 airborne radar system outperforms human eye in separating objects. A/C used is Beechcraft L-23. Airborne installation by Texas Instruments.

Signal Corps Logistics Evaluation Group
225 South 18th Street
Philadelphia 3, Pennsylvania
Telephone: KIngsley 6-3200
Extensions 8387 or 580
Colonel Douglas O. Taft, Chairman
Bernard Pear, Executive Secretary

MISSION: Develops concepts and long range plans to resolve significant problems to insure the most effective and efficient logistics support for all customers of the U. S. Army Signal Corps.

In its search for improved and less costly methods of utilizing available human and material resources, the SCLE Group works very closely with government, military, industrial, and educational organizations. The interchange of ideas, knowledge, and experience has been exceedingly fruitful in the development of its projects. Results of this close working relationship are reflected in its studies embracing the areas of mechanization of supply accounting; transportation, storage, and containerization of dry batteries; utilization of contractual technical personnel; packaging; supply management of photographic film and paper; the impact of miniaturized, modularized, and micro-modularized equipment upon the entire supply system; quartz crystals; costs of Signal equipment; intratheater logistics support systems; an optimum logistics system for the Continental United States; increased reliability of Signal equipment; value engineering; and the application of automatic data processing systems to field armies.

If you feel you can contribute to this program, you are invited to write or visit.

Office of Chief Signal Officer
Pentagon, Washington 25, D. C.

Office of Chief Signal Officer
Pentagon, Washington 25, D. C.
Telephone exchange: OXford
Information: LIberty 5-6700

data publications

CHIEF SIGNAL OFFICER — Maj. Gen. D. S. Fleming — SIGO — 2E 260 — 54000
PROGRAM ASSISTANT — Mrs. M. L. Balmforth — SIGO — 2E 260 — 54000

DEPUTY CHIEF SIGNAL OFFICER — Maj. Gen. E. P. Gaus — SIGDC — 2E 266 — 69900
ADMINISTRATIVE ASSISTANT — Mrs. M. R. St. Clair — SIGDC — 2E 266 — 69900

EXECUTIVE — Col. W. M. Lauterbach — SIGEO — 2E 286 — 71379
EXECUTIVE STAFF — Lt. Col. W. M. Shepard — SIGEO-2 — 2E 261 — 79026
OFFICE OF TECH. LIN — Lt. Col. E. E. Shifflet — SIGEO-4 — BD 1034 — 53867
SECURITY BRANCH — Col. A. B. Beck — SIGEO-5 — 2E 1027 — 74851
ADMINISTRATIVE BRANCH — Lt. Col. E. W. Klein — SIGEO-6 — 2E 253 — 76756
SMALL BUSINESS ADVISOR — Mr. J. P. Jaquette, Sr. — SIGPD-1a — 2642 Main — 62106
EXECUTIVE MAIL SECTION — — — 2E 261 — 56991

MILITARY ASSISTANTS — SIGO — 2E 266 — 79997
SPECIAL ASSISTANT FOR COMBAT SURVEILLANCE — Brig. Gen. W. M. Thomas — SIGCS — 2E 266 — 79926
SPECIAL ASSISTANT FOR RADIO FREQUENCY ENGINEERING — Lt. Col. E. J. Huffman — SIGFO — BB 965 — 72193

PRINCIPAL ASSISTANT — Mr. J. E. Persico — SIGEO-1a — 2E 266 — 79997
SPECIAL ASSISTANT FOR COMBAT READINESS — Mr. F. E. Coale — SIGEO-1b — 2E 266 — 79926
SPECIAL ASSISTANT FOR OPS RSCH & ADPS — Mr. H. Silverstein — SIGEO-1c — 2E 310 — 74819

PROVOST MARSHAL (SOUTH AREA, FORT MYER) — Col. A. C. Cheyne — SIGPM — 1-521 — 73198 — Deputy — 1-521 — 73198

INSPECTOR GENERAL (MUNITIONS BUILDING) — Col. L. M. Reiner — SIGIG — 4407 — 67731 — DIVISION MAIL ROOM — 4409 — 67732

PERSONNEL & TRAINING DIVISION (MUNITIONS BUILDING)
CHIEF — Col. W. B. Bell — SIGPT — 4521 — 67017
ASSISTANT CHIEF — Lt. Col. W. E. Blake — SIGPT — 4521 — 67015
DR., ASST. TO CHIEF PERS. & TNG. — Col. J. R. Turner — SIGPT — 4521 — 67015
EXECUTIVE — Mr. R. H. Chapman — SIGPT — 4532 — 67013
CHIEF EXECUTIVE MANAGEMENT BRANCH — Mr. R. H. Chapman — SIGPT — 4532 — 67013
CIVILIAN PERSONNEL BRANCH — Mr. J. H. Donaghy — SIGPT-1 — 4609 — 67880
EDUCATION AND TRAINING BRANCH — Col. D. S. Bateman — SIGPT-2 — 4627 — 67741
MILITARY PERSONNEL BRANCH — Col. S. N. Vail — SIGPT-3 — 4539 — 67535
SAFETY BRANCH — Mr. J. M. Kozak — SIGPT-4 — 4613 — 67823
DIVISION MAIL ROOM — — — 4623 — 67824

ARMY PICTORIAL DIVISION
CHIEF — Col. A. A. McCrary — SIGAP — 5A 1040 — 72520
EXECUTIVE OFFICER — Lt. Col. J. S. Bendzell — SIGAP-2 — 5A 1042 — 3695B
BUDGET & MGMT OFFICE — Mr. C. P. McCool — SIGAP-3 — 5B 1075 — 77835
PLANS & REQUIREMENTS BRANCH — Maj. Stanford Roberts — SIGAP-4 — 5A 1038 — 54016
STILL PICTURE BRANCH — Lt. Col. J. A. Hensel — SIGAP-5 — 5B 1044 — 53886
MOTION PICTURE BRANCH — Lt. Col. S. T. Brown — SIGAP-6 — 5B 1075 — 74405
FILM DISTR & UTILIZATION BR. — Mr. J. A. Moses — SIGAP-7 — 5B 1075 — 73939
TELEVISION BRANCH — Lt. Col. Hollis Dekin — SIGAP-8 — 5A 466 — 54935
AUDIO-VISUAL APPLICATIONS OFFICE — Dr. J. H. Kemner — SIGAP-9 — 5A 466 — 54935
DIVISION MAIL ROOM — — — 5B 1075 — 79453

COMPTROLLER DIVISION
CHIEF AND COMPTROLLER, OCSigO — Col. H. R. Sanford — SIGCS — 2E 282 — 53087
ASSISTANT COMPTROLLER — Lt. Col. J. E. Vandeble — SIGCS — 2E 282 — 79059
SPEC. ASST. TO THE COMPTROLLER — Mr. M. C. Weir — SIGCS — 2E 282 — 53867
ADMINISTRATIVE OFFICE — Mrs. M. Tidmore — SIGCS — 2E 282 — 78959
BUDGET BRANCH — Mr. C. W. DiFebio — SIGCS-1 — BD 1031 — 53877
FINANCE AND ACCOUNTING BRANCH — Col. E. E. Hoag — SIGCS-2 — BD 1034 — 54892
MANAGEMENT ANALYSIS BRANCH — Mr. D. J. Egan — SIGCS-3 — BD 1034 — 54843
FACILITIES BRANCH — Col. P. M. Langhlar, CE — SIGCS-4 — BD 1036 — 77921
DIVISION MAIL ROOM — — — BD 1038A — 54939

LEGAL DIVISION
CHIEF — Mr. J. O. Gross — SIOLG — 1E 414 — 53702
ASSISTANT CHIEF — Mr. J. L. Burch — SIOLG-1 — 1E 414 — 79917
ASSISTANT CHIEF (PATENTS) — Mr. H. M. Sarogerlis — SIOLG-4 — 1E 408 — 73730
GENERAL LAW BRANCH — Mr. C. E. Crotty — SIOLG-2 — 1E 417 — 55279
PROCUREMENT LAW BRANCH — Mr. C. M. Kaszaza — SIOLG-3 — 1E 403 — 54273
PATENTS PROSECUTION BRANCH — Mr. H. M. Sarogerlis — SIOLG-4 — 1E 408 — 73730
PATENTS PROCUREMENT BRANCH — Mr. L. Glassman — SIOLG-5 — 1D 405 — 72415
CLAIMS & LITIGATION BRANCH — Mr. M. J. McCarthy — SIOLG-6 — 1E 402 — 53537
DIVISION MAIL ROOM — — — 1D 401 — 53407

ARMY COMMUNICATIONS SYSTEM DIVISION
CHIEF — Col. O. P. Sampson — SIGAC — 2E 284 — 53996
DEPUTY CHIEF — Col. W. B. Feimdel, Jr. — SIGAC-1 — 2E 234 — 54817
TECHNICAL DIRECTOR — Mr. C. D. May — SIGAC-1a — 2E 237 — 74812
EXECUTIVE — Maj. M. O. Brinegar — SIGAC-2 — 2E 234 — 55948
ARM-SECURITY OFFICE — Capt. S. Paulson — SIGAC-3 — 2D 245 — 53807
PROGRAM & BUDGET BRANCH — Col. S. Caron — SIGAC-4 — 2D 236 — 77979
COMMUNICATIONS PLANNING BRANCH — Col. S. G. Winebiler — SIGAC-5 — 2E 231 — 56956
INTERAGENCY COMM. BRANCH — Lt. Col. C. H. Covington, Asst. — SIGAC-8 — Main. Bldg. — 67886
COMMUNICATIONS FACILITIES BRANCH — Lt. Col. R. E. White — SIGAC-10 — 2D 235 — 79484
DIVISION MAIL ROOM — — — 2D 249 — 54280

PLANS, PROGRAMS & OPERATIONS DIVISION
CHIEF — Col. L. P. Jacobs — SIOP — 2E 270 — 53208
DEPUTY CHIEF — Col. L. F. Walker — SIOP — 2E 274 — 53356
EXECUTIVE — Lt. Col. H. D. Harbach — SIOP — 2E 274 — 77818
EXECUTIVE MANAGEMENT OFFICE — Mr. D. L. Bennett — SIOP-1 — 2E 274 — 77818
JOINT ACTIONS CONTROL OFFICE — Col. J. M. Feuhs — SIOP-2 — 2D 260 — 53409
ARMY ELECTRONIC WARFARE POLICY COMMITTEE — Lt. Col. M. M. Lawson — SIOP-3 — 2E 284 — 53856
ADVANCE PLANS BRANCH — Lt. Col. E. A. Doran — SIOP-4 — 2E 287 — 73774
WAR PLANS BRANCH — Lt. Col. J. A. Albright — SIOP-5 — 2E 287 — 53023
PROGRAMS BRANCH — Lt. Col. R. C. Penny — SIOP-6 — 2D 282 — 73001
OPERATIONS BRANCH — Lt. Col. Lapheins — SIOP-7 — 2E 273 — 72142
SIGNAL AVIATION BRANCH — Col. J. L. Leidenheimer — SIOP-8 — BE 1021A — 54481
DIVISION MAIL ROOM — — — 2E 263 — 71449

RESEARCH & DEVELOPMENT DIVISION
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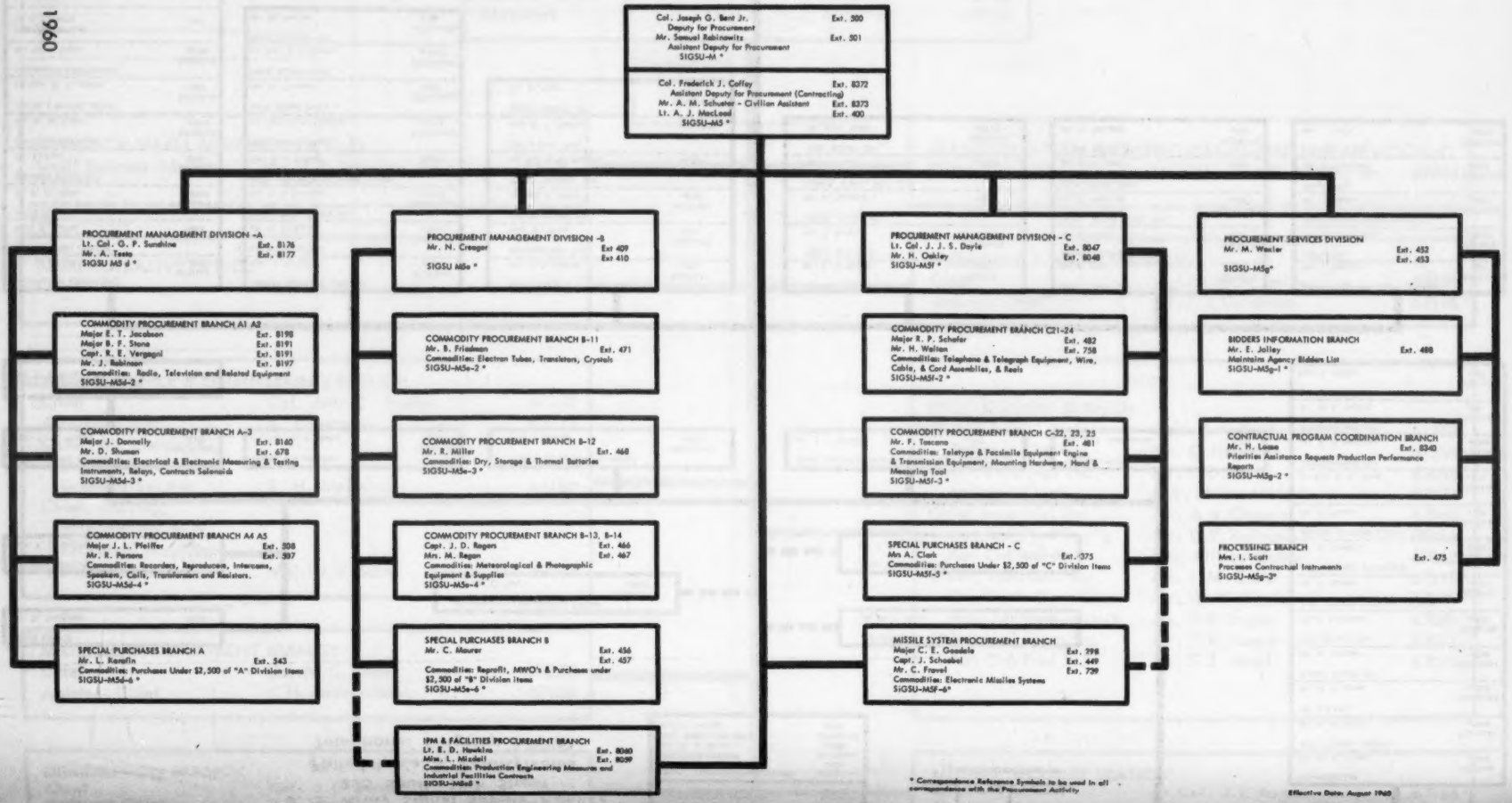
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Asst. CHIEF	F. Soriano	01604	12-215
Telephone Sec.	C. L. Schaich	01364	12-213
Teletype Sec.	E. Alves	01366	12-206
Carrier Sec.	E. R. Soden	01305	12-207
Photo & Power Sec.	C. Jelinoff	01146	12-206
RADIO COMMUNICATION BRANCH			SIGMS-MLR
CHIEF	W. Trauben	01102	12-212
Asst. CHIEF	M. Cohen	01213	12-211
Antennas Sec.	M. O'Dwyer	01376	12-205
Fixed Plant Radio Sec.	P. Miller	01502	12-204
Terrisol Radio Sec.	M. Min	01502	12-203
Radio Rel. & Microwave Sec.	A. Abrams	01103	12-210
SURVEILLANCE & INSTRUMENTATION BRANCH			SIGMS-MLS
CHIEF	J. R. Bevin	01319	11-213
Asst. CHIEF	H. Halsey	01319	11-215
Meteorological Sec.	D. Henderson	01319	12-207A
Radar Sec.	R. J. Schultz	01368	12-211A
Countermeasures Sec.	S. H. Copeland	01226	11213A
Instrumentation Sec.	H. B. Ford	01367	12-201A

PROCUREMENT DATA DIVISION — SIGMS-PP

		Tel. No.	Location
CHIEF	S. Mathlin	01148	6-101
Asst. CHIEF	H. F. Stallings	01323	6-103
Program Planning	W. J. Cheney	01134	6-102
Admin. Opns.	G. Fay	01380	6-103
Technical Opns.	W. H. Thompson	01384	6-103
SPECIFICATIONS ENGINEERING BRANCH			SIGMS-PPS
CHIEF	W. H. Hall	01415	6-108
Asst. CHIEF	E. J. Bergold	01415	6-108
Radar-Met. Equ. Sec.	D. J. Minott	01277	6-105
Radio Equ. Sec.	R. Mandel	01380	6-109
Wire Equ. Sec.	C. Ottaviano	01412	6-112
Gen. Equ. Sec.	M. Norman	01414	6-112
ENGINEERING PROCEDURES BRANCH			SIGMS-PPE
CHIEF	M. Rosenfeld	01123	11-203A
PRODUCTION DRAWINGS BRANCH			SIGMS-PPP
CHIEF	M. S. Moore	01152	10-201
Asst. CHIEF	J. Hobbs	01666	11-201
Radio Sys. Sec.	H. Kraus	01366	10-204
Area Sys. Sec.	W. Kugelub	01612	10-209
Radar Sys. Sec.	A. Perna	01301	10-205
ENGINEERING DESIGN BRANCH			SIGMS-PPD
CHIEF	S. Kotsen	01272	10-210
Integration Sec.	W. Carlin	01206	10-216
Product Design Sec.		01419	10-216
PROCUREMENT DOCUMENTS BRANCH			SIGMS-PPX
CHIEF	I. Stiles	01206	10-103
Asst. CHIEF	W. Gemmel	01206	10-102
Data Processing & Sys. Sec.	M. Aggimozzo	01203	10-103
Microfilmed Data Sec.	W. Spitzer	01570	5-6
COMPONENTS ENGINEERING BRANCH			SIGMS-PPC
CHIEF	M. D. Bean	01124	5-205
Asst. CHIEF	F. Lester	01617	5-206
Electronic Comp. Unit Sec.	I. Richard	01619	5-216
Mech. & Elec. Comp. Unit Sec.	S. Lesiv	01316	5-215
Engrg. Support Sec.	H. Schmidlich	01670	5-210

TRANSMISSION DIVISION — SIGMS-PSD

		Tel. No.	Location
CHIEF	H. S. Hess	01220	11-214
Asst. CHIEF	J. C. Brown	01605	11-210
Tech. Opns.	L. Wasshoff	01117	11-206
Admin. Opns.	O. Henriksen	01373	11-206
COMMUNICATION BRANCH			SIGMS-PSC
CHIEF	C. E. Beney	01155	220 5-6
Asst. CHIEF	A. T. Varnez	01212	218 5-6
Audio Sec.	F. Cerosa	01213	217 5-6
Radio Sec.	D. Pollack	01220	212 5-6
Transmission Sec.	H. Gold	01607	210 5-6
Video & Guidance Sec.	W. Lemke	01348	214 5-6
Wire Sec.	R. Stauffer	01423	211 5-6
COMPONENTS & MATERIALS BRANCH			SIGMS-PSM
CHIEF	G. A. Driskell	01127	114 5-6
Asst. CHIEF	C. Gardner	01609	114 5-6
Electronic Components Sec.	S. Grubman	01402	111 5-6
Elec-Mech. Components Sec.	S. Gilbert	01430	107 5-6
Electron Devices Sec.	J. Haddock	01641	118 5-6
Materials Sec.	A. Orlowski	01642	106 5-6
INSTRUMENTATION BRANCH			SIGMS-PSI
CHIEF	S. Benson	01169	11-201
Asst. CHIEF	S. Cytrol	01315	11-201
Gen. Instrument Sec.	M. Glamser	01368	11-211
Special Instrument Sec.	N. Portnefsker	01194	11-217
Gen Engrg & Standards Sec.	D. Livingston	01317	11-210
Nanomature Sec.	M. Bussenschutt	01634	11-208
PHOTOGRAPHIC BRANCH			SIGMS-PSP
CHIEF	E. P. Sutherland	01139	1176 5-6
Asst. CHIEF	C. Agford	01314	1176 5-6
Still Picture & Equ. Sec.	M. Baron	01326	1136 5-6
Motion Pic. & Aerial Equ. Sec.	M. Venezia	01649	1136 5-6
Processing Equ. & Sup. Sec.	H. Ison	01102	202 5-6

OPERATING ELEMENTS

PRODUCTION ENGINEERING DEPARTMENT — SIGMS-P

		Tel. No.	Location
DIRECTOR	W. J. Lovorich	01622	3-202
Asst. to DIRECTOR	R. I. Ullman	01454	3-202
Chief Staff Engineer	H. Segall	01134	3-202
Prod. Engrg. Measures Coordinator	L. M. Compton	01145	6-206

MAINTENANCE ENGINEERING DEPARTMENT — SIGMS-M

		Tel. No.	Location
DIRECTOR	R. P. Iannarone	01214	6-202
Asst. to DIRECTOR		01589	
Chief Staff Engineer	A. H. Quint	01643	7-201
Staff Asst.	T. Cox	01206	7-201
Tech. Info. Coordinator	C. F. Moore	01292	7-201

PUBLICATIONS ENGINEERING DEPARTMENT — SIGMS-PA1

		Tel. No.
Bldg. 467		
DIRECTOR	Lt. Col C. S. Hampton	22105
Deputy DIRECTOR	J. H. Coutz	23016
Asst. DIRECTOR	V. V. Walsh	21209

APPLICATIONS ENGINEERING DIVISION — SIGMS-MA

		Tel. No.	Location
CHIEF	T. Cobbinatti	01122	7-102
Asst. CHIEF	C. J. Canepa	01108	7-106
Tech. Opns.		01122	7-104
Admin Opns.	H. E. Gross	01363	6-102
GAGE ENGR. SEC.			SIGMS-MAG
CHIEF	E. Taylor	01201	5-105A
EQUIPMENT IMPROVEMENT BRANCH			SIGMS-MAE
CHIEF	V. F. Syverson	01661	5-101
Asst. CHIEF	R. K. deBuono	01514	5-101
Radio, Comm. Sec.	L. A. Pinto	01363	5-116
Radar, Ca. & Photo Sec.	M. Merlin	01367	5-110
Telecom. & Spec. Equ. Sec.	B. B. Burt	01441	5-107
Mat. Evaluation Sec.	M. Keller	01416	5-103
Med. Engrg. Sec.	A. Hindin	01662	5-113
PRODUCT ENGINEERING BRANCH			SIGMS-MAP
CHIEF	J. L. Fraizer	01515	7-108
Asst. CHIEF	S. Campion	01315	7-108
Radio, Radar & Avionics Sec.	A. Lemberg	01364	7-112
Telecomm. & Spec. Equ. Sec.	E. Manuel	01460	7-116

MAINTENANCE METHODS DIVISION — SIGMS-MM

		Tel. No.	Location
CHIEF	W. C. Grubb	01359	5-208
Asst. CHIEF	E. V. Spaeth	01106	5-202
Tech. Opns.	R. E. Redfern	01361	9-202
Admin. Opns.	E. V. Wesmiller	01395	5-206
EQUIPMENT ENGINEERING BRANCH			SIGMS-MME
CHIEF	W. P. Sumler	01417	7-205
Asst. CHIEF	W. E. Harris	01467	7-206
Telescreen Sec.	G. W. Smallwood	01366	5-201
Radio Sec.	W. E. Harris	01367	7-206
Surveillance Sec.	P. J. Bowie	01362	7-214
TOOL & TEST ENGINEERING BRANCH			SIGMS-MMT
CHIEF	C. L. Lemon	01362	7-213
Asst. CHIEF	W. A. Biener	01389	7-213
Test Equ. Sec.	S. S. Kirshner	01366	7-205
Tool Engr. Sec.	R. S. Lennon	01373	5-205

TELECOMMUNICATIONS DIVISION — SIGMS-PA5

		Tel. No.
Bldg. 476		
CHIEF	M. A. Pasharitz	21054
Asst. CHIEF	H. A. Hardman	22784
Tech. Opns.	W. J. Martin	21054
RADIO BRANCH		-PA5a
CHIEF	P. Trutman	22880
WIRE BRANCH		-PA5b
CHIEF	M. A. Pribish	23953
TRANSMISSION FACILITIES BRANCH		-PA5c
CHIEF	J. Zervas	22752

APPLIED COMMUNICATIONS DIVISION — SIGMS-PA6

		Tel. No.
Bldg. 472		
CHIEF	W. A. Hartopher	21959
Asst. CHIEF	J. C. Franklin	23097
Chief Clerk		21959
TACTICAL BRANCH		-PA6a
CHIEF	W. W. Wyant	23903
COMMUNICATIONS ENGINEERING BRANCH		-PA6b
CHIEF	F. B. Crisp	21694

SERVICES DIVISION — SIGMS-PA4

		Tel. No.
Bldg. 470		
CHIEF	N. J. Giacoona	22109
Asst. CHIEF	W. P. Cosco	21293
Chief Clerk	T. J. Pace	22107
TONE ART BRANCH		-PA4a
CHIEF	J. H. Crank	23090
LINE ART BRANCH		-PA4b
CHIEF	W. H. Beegar	23561
EDITING & TYPING BRANCH Bldg. 488		-PA4c
CHIEF	E. Fornstrom	22042
PICTORIAL BRANCH Bldg. 612		-PA4d
CHIEF	F. M. Kantor	23668

ARMY FIELD PRINTING PLANT — SIGMS-PA7

		Tel. No.
Bldg. 288		
SUPERINTENDENT	R. L. Deemer	23052
Asst. SUPT.	J. L. Oppici	23052
Plant Foreman	J. Trajan	22146
Chief Clerk	M. F. Bahrens	22146
PLANNING BRANCH		
CHIEF	C. J. Hess	21496
SERVICES BRANCH		
CHIEF	J. Trajan	22146
OFFSET BRANCH		
CHIEF	J. V. Nasser	22146
BINDERY BRANCH		
CHIEF	D. DeVito	22146
SHIPPING BRANCH		
CHIEF	F. Taylor	21284

PLANS AND RELEASE DIVISION — SIGMS-PA8

		Tel. No.
Bldg. 471		
CHIEF	J. Osgood	23248
Asst. CHIEF	C. A. Nelden	23757
Chief Clerk	G. B. Ryder	23250
SURVEILLANCE & MISSILE BRANCH		-PA8a
CHIEF	E. M. Kravitch	21548
TRANSMISSION & FACILITIES BRANCH		-PA8b
CHIEF	W. Jeller	23843
QUALITY CONTROL BRANCH		-PA8c
CHIEF	D. W. Bibby	21553
PUBLICATIONS CONTROL BRANCH		-PA8d
CHIEF	M. L. Pairo	23264
E&Communications BRANCH		-PA8e
CHIEF	A. C. Nisenith	21472
FILES BRANCH		-PA8f
CHIEF	G. Clark	23095

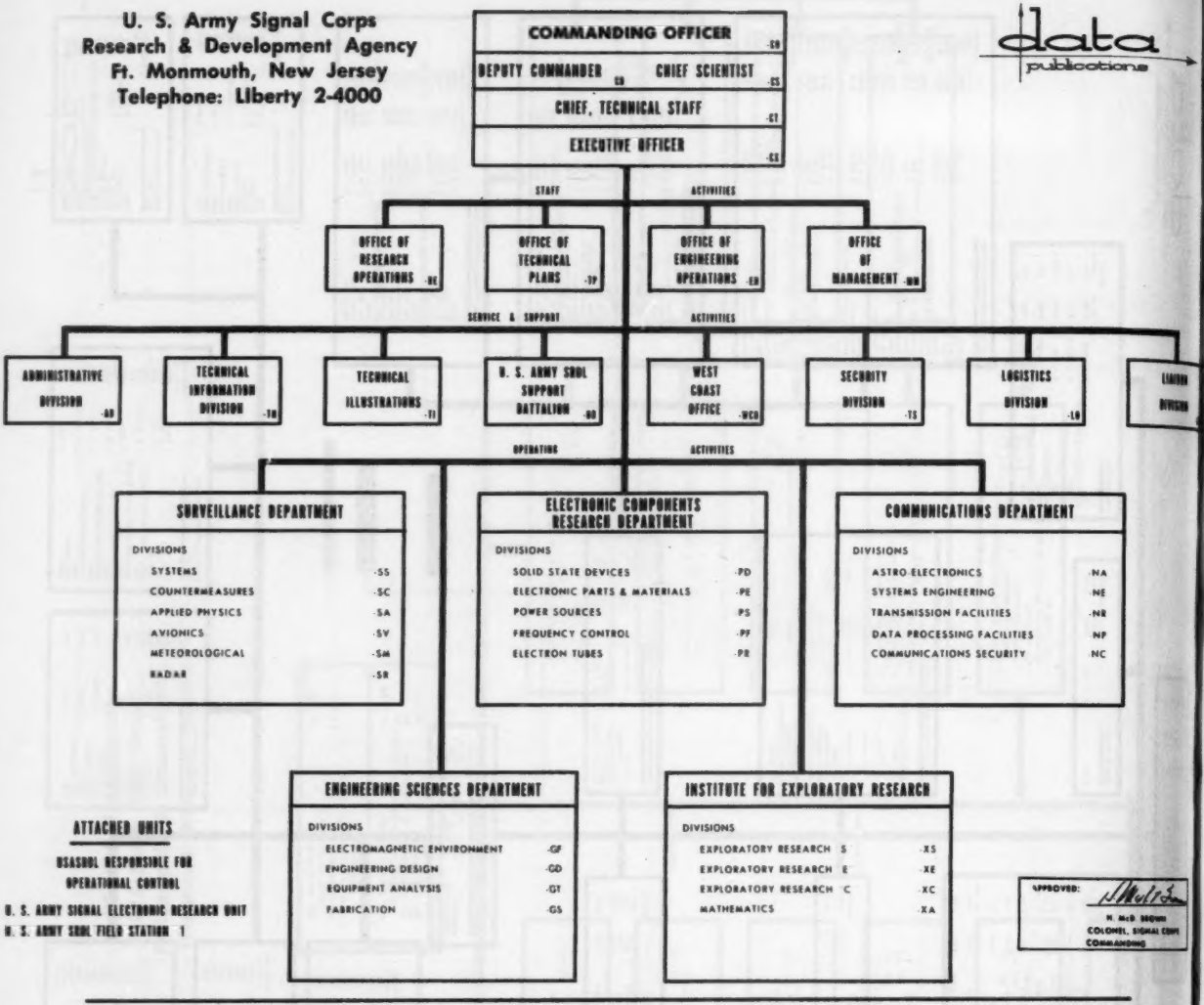
DATA FACILITIES DIVISION — SIGMS-PA3

		Tel. No.
Bldg. 474		
CHIEF	G. J. Kraft	21361
Asst. CHIEF	G. C. Kane	21661
Chief Clerk	J. E. Hamilton	21361
MISSILE BRANCH		-PA3a
CHIEF	H. J. Przybylowski	23765
RADAR BRANCH		-PA3b
CHIEF	R. Connor	23772
COMPUTER BRANCH		-PA3c
CHIEF	A. Wiener	23446

SURVEILLANCE DIVISION — SIGMS-PA9

		Tel. No.
Bldg. 469		
CHIEF	N. Barr	21432
Asst. CHIEF	S. P. Gentile	23879
Chief Clerk	A. Angilio	21432
DRONES BRANCH		-PA9a
CHIEF	S. J. Alexander	23257
PHOTOGRAPHIC BRANCH		-PA9b
CHIEF	M. Wiese	23917
AVIONICS BRANCH		-PA9c
CHIEF	T. Conti	21939

U. S. Army Signal Corps
Research & Development Agency
Ft. Monmouth, New Jersey
Telephone: Liberty 2-4000



ATTACHED UNITS

USASDL RESPONSIBLE FOR OPERATIONAL CONTROL

U. S. ARMY SIGNAL ELECTRONIC RESEARCH UNIT
U. S. ARMY SDBL FIELD STATION 1

APPROVED:
H. McD. BROWN
COLONEL, SIGNAL CORPS
COMMANDING

	Symbol	Telephone Extension	Location
EXECUTIVE STAFF			
COMMANDING OFFICER			
Col H. McD. Brown	-CO	51111	3C124
DEPUTY COMMANDER			
Col Raymond H. Goodrich	-CD	51126	3C124
CHIEF SCIENTIST			
Dr Hans K. Ziegler	-CS	51268	3C124
EXECUTIVE OFFICER			
John S. Crull	-CX	51144	3C124
STAFF ACTIVITIES			
DIRECTOR OF RESEARCH			
Dr. H. A. Zahl	-DR	51136	3C124
Dep. Dir.—E. K. Kaprelian	-DR	52884	3C128
Asst. Dir. (Admin)—R.O. Parker	-DR	52135	3C134
ARPA-NASA-DASA COORD.—V.E. Reilly	-DR	51274	3C132A
STAFF: H.E. Inserman	-DR	52371	3C132A
J. L. Moncrief	-DR	52710	3C128
A. Schwartz	-DR	52135	3C130
N.A. Terhune	-DR	51958	3C132A
DIRECTOR OF TECHNICAL PLANS			
H. W. Parmer	-DP	52112	3C134A
Dep. Dir.—F. Haake	-DP	52112	3C134A
Planning Objectives—D. Hamsher	-TPC	51714	3C136B
Signal Planning—R. H. Noyes	-TPS	52411	3C144
Program Planning—J. T. Evers	-TPD	51570	3C146
DIRECTOR OF ENGINEERING			
S. E. Petrillo	-DE	51171	3C110
Dep. Dir.—C.L. Blair	-DE	52918	3C136B
Engineering Operations—A. W. Day	-ENO	52918	3C136B
Engineering Programs—R. McKinley	-ENP	52683	3D116
DIRECTOR OF MANAGEMENT			
F. A. Kineavy	-DM	51131	3C114A
Dep. Dir.—			
Budget & Accounting—J. F. Mullery	-MMB	52910	3C112A
Management—J.F. Regan	-MMM	52534	3D105
SERVICE AND SUPPORT ACTIVITIES			
ADMINISTRATIVE DIVISION			
Chief—P. J. Wall	-AD	51177	3D113
Dep. Chief—H. E. North	-AD	52860	3D113
Safety Officer—F. L. Burt	-AD	52808	4C134
BRANCHES			
Adjutant—Maj. F. J. Haynes	-ADJ	51333	2D113B
Pictorial & Repro.—T. E. Catelli	-ADP	51508	1AB136D

	Symbol	Telephone Extension	Location
Tech. Documents Center—T. J. Lalli	-ADT	51054	2C122
TECHNICAL INFORMATION DIVISION			
Chief—L. Rokaw	-TN	52159	3D133
Dep. Chief—D. W. Wixon	-TN	52184	3D133
BRANCHES			
Rpts. & Info. Dissem—W. J. Chiego	-TNR	52160	3D135
SCTC Section	-SCTC	52478	3D132B
Presentation & Technical Intelligence—J. O. Wilson	-TNP	52934	3D137
Special Assignments—G. E. Moise (Actg)	-TNS	52185	3D131
TECHNICAL ISSUSTRATIONS			
Chief—B. H. Christenson	-TI	51409	2C108
Dep. Chief—S. B. Pierce, Jr.	-TI	51409	2C112
SECURITY DIVISION			
Chief—E. M. McDermott	-TS	51641	3D127
Dep. Chief—C. E. Taylor	-TS	52633	3D127
BRANCHES			
Hexagon Security—F. R. Hayden	-TSH	52658	Lobby
Evans Security—J. S. Campbell	-TSE	61122	Evans Area
LOGISTICS DIVISION			
Chief—Maj. L.A. Duffield	-LO	51196	3C1108
Dep. Chief—Capt. W. T. McBreen	-LO	51197	3C1108
Chief of Operations—W. Greenwood	-LO	51435	3C108
Chief Inspector—J. Ginn	-LO	52830	3D108
Administrative Section—B. Walker	-LO	51851	3C108
BRANCHES			
Consumer Supply—R. Dorer	-LOS	51012	Bldg. 2502,CWA
Property Control & Distribution—P. Gentile	-LOP	52377	OA404
Supply Services—C. Mullaney	-LOB	52684	3C109
LIAISON DIVISION			
Chief—C.L. Francis	-LN	52782 52634	4D121
USASRDL INDUSTRIAL LIAISON OFFICE			
J.F. Mannix, Hex Bldg., Bay 1B118	-LNB	52240	
Lobby	-LNB	52546	

USASRDL LIAISON OFFICERS	Symbol	Telephone Number
Air Research Development Command Wright Air Development Division Wright-Patterson Air Force Base, Ohio, WCOL-9 Capt. E.V. Norris	-LND	CLearwater 3-7111, X 29254
U.S. Army Ordnance Arsenal, Detroit Ordnance Tank Automotive Command Centerline, Michigan S.F. Tompos	-LNC	JEfferson 6-5000, X 25218
Lincoln Laboratory Lexington, Massachusetts Airforce Command & Control Development Div. L.G. Hanscom Field, Mass. Col. C. W. Janes	-LNL	VOlunteer 2-3370, X 671
Mass. Institute of Technology Cambridge, Massachusetts RLE Activities Harvard University Air Force Command & Control Development Div. L.G. Hanscom Field, Mass.	-LNM	
Industrial Organizations in Boston Area A.D. Bedrosian		UNiversity 4-6900, X 2567
Naval Research Laboratory Washington, D.C. Lt. Col. E. B. Hagerman (Tie Line Code 172)	-LNN	JOhnson 3-6600, X 368
Rome Air Development Center, RCOL Griffiss Air Force Base, N.Y. Capt. M.L. Norton	-LNG	Rome 3-200, X 71111
Hq. US CONARC Fort Monroe, Va. R.P. Lee	-LNP	Park 2-7972, X 3103
WEST COAST OFFICE 75 South Grand Avenue, Bldg 6 Pasadena, California Acting Chief G. C. James	SIGRA/SL-WCO	Sycamore 6-7411 Murray 1-8620
U.S. ARMY SIGNAL RESEARCH AND DEVELOPMENT LABORATORY SUPPORT BATTALION Commanding Officer, Maj. W. J. Lawlor	-UB	X 23940
Company Commanders: Headquarters & Headquarters Co.—Lt. O.S. Powell, Jr.	-UBH	X 21048
Research & Development Co.—Capt. J.S. Zolty	-UBR	X 22776
New Equipment Introductory Co.—Capt. H.E. Allen	-UBE	X 23846

Communications Department			
Dir.—Col. R. H. Bates	-N	51186	3C124A
Dep. Dir.—R.S. Boykin	-N	51818	3C212
Asst. Dir.—G.F. Senn	-N	52611	3C214B
Tech. Staff—Lt. Col. L.W. Miller	-N	52181	3C213
Admin. Staff—W.C. Brown	-N	52441	3C218

	Symbol	Telephone Extension	Location
ASTRO-ELECTRONICS DIVISION			
Director—S.P. Brown	-NA	52709	4C122
Dir. Dir.—D. Jacoby	-NA	52573	4C122
Tech. Staff—G. Krassner	-NA	51032	4C116A
Admin. Staff—B. Vaughan	-NA	51235	4C122
BRANCHES			
Astro-Communications—P. Maresca	-NAC	52247	4C112
Astro-Instrumentation—H. Butler	-NAI	51244	4C420A
Astro-Observation & Analysis—A. Gross	-NAO	52050	4C108B
COMMUNICATIONS SECURITY DIVISION			
Dir.—B.S. Anderson	-ND	51965	4C342
Dept. Dir.—G. Ceres	-ND	51882	4C342
Tech. Staff.—W. Krueger	-ND	51344	4C340A
Admin. Staff—M. D'Esposito	-ND	51861	4C338B
BRANCHES			
Data Security—J. Buegler	-NDD	51747	3D323B
Multichannel Security—B. Keigher	-NDM	52740	4C336A
Voice Security—M. Weinstock	-NDV	51968	4C336B
DATA PROCESSING FACILITIES DIVISION			
Dir.—J. Bracken	-NP	52312	3C326A
Dep. Dir.—W. Mahoney	-NP	52970	3C326B
Tech. Staff—J. Sullivan	-NP	52764	3C328
Admin Staff—E. Fleischmann	-NP	52430	3C332A
BRANCHES			
Switching—G. Bartle	-NPA	51366	3C316
Data Transducer—H. Burkhard	-NPT	51241	3C332B
Data Equipment—M. Lipton (Actg)	-NPE	52337	3C324
SYSTEMS ENGINEERING DIVISION			
Dir.—I. Dodd	-NE	51444	3C220B
Dep. Dir.—G. Lynch	-NE	51242	3C302
Tech. Staff.—J. Johnston	-NE	52776	3C304A
Admin. Staff—E. Howell	-NE	52771	3C304A
BRANCHES			
Communication Systems—T. Pfeiffer	-NEC	52542	3C306
Data Systems—R. Gale	-NED	51080	3C312B
Mobile Communications Center—J. Eggert	-NEM	52219	3D211
TRANSMISSION FACILITIES DIVISION			
Dir.—R. Riehs	-NR	51566	4C400
Dep. Dir.—R. Kulinyi	-NR	51711	4C342B
Tech. Staff—H. Littlefield	-NR	52213	4C404A
Admin. Staff—E. Van Winkle	-NR	52317	4C406
BRANCHES			
Long Range Radio—A. Pengelly (Actg)	-NRL	52624	4C408B
Combat Area Radio—J. Durrer	-NRC	51664	4C330B
Radio Relay—L. Fobes	-NRR	52319	4C320
Surveillance Department			
Dir.—Col. J. L. Wilson, Jr.	-S	61232	Evans Area
Dep. Dir.—C. K. Shultes	-S	61121	Evans Area
Asst. Dir.—Dr. H. J. Merrill	-S	61473	Evans Area
Tech. Staff—V.L. Friedrich	-S	61218	Evans Area
Admin. Staff—Maj. Kirkpatrick	-S	61497	Evans Area
Engineering Flight Support Group—Chief, Lt. Col. Powell	-S	61265	Mon Co Airport
APPLIED PHYSICS DIVISION			
Dir.—Dr. H. J. Merrill	-SA	51700	3C500
Dep. Dir.—K.C. Burger	-SA	51522	3C500
Tech. Staff—B. Maslow	-SA	51011	3C506
Admin. Staff—F. Ronan	-SA	52060	3C502
BRANCHES			
Atomics—W. Lonnie	-SAT	51059	3D411
Photographia—D. Castellini	-SAP	52058	3C400
Reconnaissance—D. Kelly	-SAR	51335	3C418
AVIONICS DIVISION			
Dir.—L.M. Lang	-SV	61204	Evans Area
Dep. Dir.—W.L. Rehm	-SV	61324	Evans Area
Tech Staff—L. Evenson	-SV	61216	Evans Area
Admin. Staff—W. Fowler	-SV	61367	Evans Area
BRANCHES			
Air Traffic Regulation & Comm.—G. Brazee	-SVC	61364	Evans Area
Aircraft Instl. & Stds.—J. Quivey	-SVI	61307	Evans Area
Drone Aircraft—S. Greenspan	-SVD	61268	Evans Area
Navigation & Flight Aids—S. Bania	-SVN	61275	Evans Area
COUNTERMEASURES DIVISION			
Dir.—C.B. Moore	-SC	61161	Evans Area
Dep. Dir. (Actg)—A. Filippo	-SC	61464	Evans Area
Tech. Staff—A. Filippo	-SC	61464	Evans Area
Admin. Staff—J. Sturm	-SC	61171	Evans Area
BRANCHES			
Countermeasures Systems—J. Kaplan	-SCC	61233	Evans Area
Dectection and Location—S. Stiber	-SCD	61183	Evans Area
Jamming and Deception—L. Miller	-SCJ	61398	Evans Area
METEOROGICAL DIVISION			
Dir.—D. Deisinger	-SM	61224	Evans Area
Dep. Dir.—J. LeBedda	-SM	61220	Evans Area
Tech. Staff—S. Shafter	-SM	61127	Evans Area
Admin. Staff—S. Steelman	-SM	61472	Evans Area
BRANCHES			
Atmospheric Physics—Dr. H. Aufm Kampe	-SMA	61319	Evans Area

PHILCO TECHREP DIVISION

	Symbol	Telephone Extension	Location
Met. Instrumentation—W. Todd	-SMI	61269	Evans Area
Met. Systems—L. Panak	-SMS	61314	Evans Area
Met. Techniques—Dr. D. Swingle	-SMT	61172	Evans Area
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Major P.K. Leeseberg			
U.S.A. SIGNAL INTELLIGENCE AGENCY LIAISON OFFICE	-LNI	51870	3D130
Mr. Woodrow Terry			
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. . . Straight talk to Sales Management

"I HOPE in this article I have forcefully brought home a point—that here is an area for improvement. I'm not criticizing project teams—this is a most businesslike way to handle a program. But project teams are usually engineering dominated and I think my colleagues will agree that once the contract comes in salesmanship suffers. Obviously it shouldn't go on at the same level but there is far too much emphasis on going after the next big one without an appropriate and continuing level of marketing support. I think you'll agree that a continuing effort on the funded programs is a good strategy to bring in the new."

—Pat Thomas

Marketing's Role in Keeping the Program Sold

by Pat Thomas/DATA

THE MARKETING FUNCTION, of which the direct effort to obtain contracts is a major responsibility, has several facets which are not part of this primary effort.

MARKETING MUST KEEP CUSTOMER UNDER STUDY

Of increasing importance is the responsibility for *keeping programs sold.* We, of DATA's staff, feel that the role of the marketing organization in this connection is perhaps the most important measure of a contractor's adaptation to the marketing concept and true customer orientation. While most defense contractors now utilize the project team of operation for winning and implementating defense contracts *it is still generally true that marketing type provisions for keeping a program sold suffer by comparison with the marketing effort expended to win the award.* Keeping a program may well require more planning, more direction and total emphasis than the original sales effort. This is particularly true where the defense contractors fortunes are tied to relatively few or even one major program and the contractor is identified with one service arm. For these reasons, this month's subject is an exceedingly important one and it is hoped that it will invoke some serious introspective thinking by the reader, as well as pros, cons and additional comments to DATA.

CUSTOMER, PRODUCTS, COMPETITION

As a preface to specific recommendations it is necessary to touch on recent changes to the Customer, the Products, and the Competition.

1. The Customer

As a result of the rapid increase in technology and the necessity for continued high levels of expenditures all three service arms have made dynamic progress in their team operation capabilities. The Customer today has a significant capability to manage complex weapon systems both technically and procurement-wise. Today's defense establishment is much larger in sheer physical size, is decentralized and has considerably refined its short and long range planning mechanism. The change is, of course, still going on and will continue to do so.

ARDC, for example is going through a change which is virtually completing revamping its structure. The rush of defense contractors to open up or strengthen Boston offices (C^2D^2) and Los Angeles offices (BMD) is evidence of contractors sensitivity. Congress and the Bureau of the Budget exert considerable leverage through incremental funding and in depth examinations of all facets of procurement from bidders lists to make or buy decisions. More than ever our Customer has to justify and rejustify its actions.

The net effect of all this change is that the defense contractor now has to sell and re-sell this much larger group of individuals in the direct decision making loop and to do so with full appreciation of the forces the Customer, in turn, is reacting to.

2. The Products

Pat Hyland, General Manager of Hughes Aircraft, recently observed that just a few years ago the electronics industry was concerned with selling a million items at a dollar a piece but now is faced with the problem of selling one item for a million dollars. This remark succinctly typifies the revolution in defense marketing from GFE black boxes to customer furnished systems and sub systems.

In the face of the rapid upward slope of technology, competition and long development cycle systems, *defense contractors are devoting an increasing percentage of their total effort to selling concepts.* This is, of course, spurring internal research and development as well as turning the traditional emphasis on production to research and development. *But my basic point is to draw the reader's attention to the fact that it's much more difficult to sell and keep a system idea sold than it is to keep limited extension of a proven hardware item sold.*

3. The Competition

I have made frequent references in past articles to the fact that we are in a buyer's market, a condition brought upon by tightly controlled funding, a continuing expansion in the absolute number of defense suppliers and the development of a more knowledgeable and critical customer.

With the decline in the number of weapon systems and production quantities, defense contractors naturally are giving more emphasis to participation in existing programs.

There are few contractors who enjoy positions on a particular program which are not vulnerable to second source, new system backups, or outright cancellation. Product improvement programs for long life systems are predictable and contractors are faced with the problem of simultaneously performing competently and fending off the competition. Specifically, then what should be done from a marketing standpoint to keep a program *in bed?*

(1) **Continue your sales effort through a comprehensive, planned and flexible program of customer contact.**
(2) **Based upon intelligence inputs, take timely and correct measures.**
(3) **Do not place total past contract reliance for customer contact upon the program's project team but rather provide an appropriate form of marketing support. Consider the amount of planning involved, the rapidity with which personnel are shifted in DOD and ask yourself how best can we cope with this?**

I think that many of DATA's readers could cite examples of overselling by the marketing organizations of various defense contractors. This always has serious effects; loss of the contracts, a period of severe indigestion, the stretching thin of management, engineering and production support, wasted defense dollars, etc. I wonder how often this has been at least partially due to a sharp cleavage between Marketing and Engineering, due to the fact that when once a program has been brought "in-house" Marketing's role is deemed to be finished.

SYSTEMS MANAGEMENT ORGANIZATION

One major defense contractor has established a *Systems Management Organization* that monitors all major programs. Reporting to a *Director of Systems Management* are a number of *Program Managers.* The Director is on the President's staff. The Program Managers are not to be confused with the Project Managers who head up the actual projects in a line capacity. Through this device this particular contractor is accomplishing a second party control over its programs without exerting control directly through the marketing organization.

There are several variations on this theme—the important thing is that keeping a program in bed in systems contracting requires checks and balances of this type wherein the project manager has the benefit of expert counsel and corporate resources continue to be applied with good timing and in correct manner *after* the sale has been made.

It is virtually impossible to prosecute a new major sales effort with the same customer when marketing's support to a funded project is relegated only to the Field Office setting up appointments for project team members. On the other hand, the Project Manager does not want to have Marketing bumbling into sensitive areas and may honestly feel that Marketing's role is finished when this business has been brought in. This is a normal reaction under an "Engineering-oriented" management.

CHART I

CRITICAL AREAS

1. **COSTS**—Costs which climb excessively after a contract award place the program in immediate jeopardy. Unless the program is of very high priority it may die a lingering death—and this is worse than outright cancellation for the defense contractor.
2. **RELIABILITY**—Concern over reliability has never been higher due largely to the weapon and space system unit costs. Make it a point to keep your reliability program continuously in front of the customer.
3. **SCHEDULE**—Every day adds to technical obsolescence and schedule slippages have often resulted in a backup or rescinded source program as well as outright cancellation.
4. **TECHNICAL COMPETENCE**—Once you fully analyze how many agencies and other branches are in the loop you will see that it is necessary to keep a wide technical audience informed of your technical progress on the program. Marketing representatives as well as the project team members should not only inform these groups as to how your system works but should detail the in-house and related advanced research which will provide for growth potential in your system.
5. **CAPABILITY TO ASSUME NEW BUSINESS**—Many defense contractors have developed aggressive marketing organizations which in some instances have stretched capabilities too thin with resulting bad effects. The military is becoming increasingly sensitive to this condition. Don't go out to sell an item being developed for one system for another application until the appropriate time. When you do enter a new competition of major importance it may be just as important to prove you can handle this job from the standpoint of facilities and personnel as it is to show technical competence in the field.

MANAGEMENT NEEDS CUSTOMER-REACTION INFORMATION

Management must have the means by which it can continuously be informed of the status of its programs *as seen through Mr. Customer's eyes.* As Mr. Customer sees the program, for all practical purposes, this is the condition of the program, for the customer exerts final control and bases its decisions on the impressions it holds.

Certainly a program either is or is not on schedule but not all matters reduce to such black or white conditions. Every system has its critical areas, and whether the customer regards an item as a "problem" or a "breakthrough" depends on the confidence level the contractor projects to the customer. A contractor who makes the mistake of waiting for the rainy day to run back to the customer should give some thought to the old adage that a politician's first duty is to get elected and his second duty is to

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1961
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CHART II

EVALUATION FACTORS

1. **Production capabilities and facilities.**
2. **Quality control (over-all) company management structure.**
3. **Costs.**
4. **Management approach to development and testing.**
5. **Subcontract technical capabilities (both personnel and facilities).**
6. **Past performance in the meeting of schedules.**
7. **Maximum utilization of available industrial capabilities.**
8. **Minimum acquisition of new government facilities.**
9. **Maximum use of specialized industries.**
10. **Maintenance of a healthy basic aeronautical industry.**
11. **Maximum competition.**
12. **Utilization of small business to the greatest extent practicable.**
13. **Maximum use of standardized components.**
14. **Avoidance of unnecessary duplication of development.**

stay elected. I'm twisting the meaning of this remark, to be sure, but only to emphasize the importance of running in to see the customer on the sunny days and to being properly sensitive to the signal flags when first raised. Marketing has a dual responsibility to its own company and the customer. Marketing is the primary contact the customer has with a contractor and so it's natural that the customer should be vocal about its problems with the contractors marketing representatives. Mr. Customer expects the marketing organization to represent him, to understand his problems and to see that proper actions are taken. Thus it is often necessary for the marketing organization to play the role of defense lawyer. Where marketing only plays back to management what they want to hear—and does not wear dual hats—the contractor has a weak, ineffectual sales effort, lacking in integrity and one which will inevitably be the cause of its own (and perhaps the contractor's) undoing.

SUM-UP OF KEEPING PROGRAMS SOLD

In summary, whether it be done by a systems management organization or marketing, defense contractors require a program of planned customer relations effort on each project which does not terminate until the project is terminated. Problem areas should be uncovered, held up to the light and remedied technically and managerially. Potential and minor problems can be isolated and compensated for before they require a tourniquet instead of a band-aid. To do this program roadmaps should be made, a flexible plan of action developed which will provide a bilateral information flow based upon well timed personal contacts by opposite numbers and a rapid line of communications to all concerned members of management should be established. Finally, the group responsible for this function must be correctly placed in the organization so that its recommendations will result in the proper actions being taken in timely fashion.

Two final tips:

(1) Chart No. II contains a list of evaluation factors which while not all inclusive cover a number of key points used by the military in the evaluation of contractors. Use this chart as a guide in programming activities designed to keep your program in bed. Its just as important after the award as before.

(2) Market research should abstract all pertinent Congressional Hearings and trade journal material and statements regarding your system. Who said what? Does he understand the problem? What's his background? Management should decide whether a visit would be in order. Market research should also prepare comprehensive lists of all sensitive personnel and advise management as to why this is so.

A plan of this type obviously cannot help the uncontrollable aspects of our defense business (international political climates, sudden obsolescence in a system caused by a competitive break-through, etc.) but it will naturally help in keeping your programs in bed. This, coupled with your best efforts technically and managerially are the basic substance of effective program control in keeping the program sold. ■

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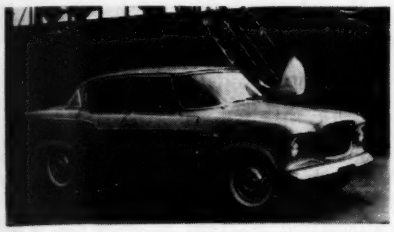

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This issue marks the first time we are running this feature. If you think it is a good idea and should be retained, please let me know. Otherwise it will be dropped.

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guide: stabilizing fins
power: Grand Central Rocket
Launched from helicopter or medium-weight Army a/c, ARROW rocket motor burns out at from 5000 to 7000 ft and coasts upward to apx. 45,000 ft. With a 6-lb payload, separation is req from 5000 to 7000 ft in order for this payload to coast upward to 120,000 ft. Payload is needle-nosed enlarged to apx. 2 in O.D. and enters target area almost vertically. Ideal surprise attack weapon.

ASROC Navy
Type: UU prime: Minn.-Hon.
length: 15 ft. weight: 1000 lbs.
guidance: stabilizing fins
★ Development cost $65 million. Latest award $2.9 million to Minn.-Hon. for continued production. Navy has 2 ships fully equipped with ASROC missile system. Plans call for total of 150 destroyers and cruisers with ASROC within 3 years.

ASTER Navy
Type: SU prime: APL/Vitro
guide: Ford range: 30 mi.
power: Allegheny/Rocketdyne
Ship launched TERRIER carries ASW torpedo to surface destination, where torpedo drops off for attack. May replace SUBROC. Now in R&D.

ATLAS SM-65 AF
Type: ICBM prime: Convair
guide: GE/Burroughs/Am. Bosch
power: North American
nosecone: GE length: 75 ft.
weight: 260,000 lbs. dia: 10 ft
range: 5500 naut. mi.
★ ATLAS squadrons will cost $152 million apiece. FY '61 funding $232.9 million. SAC's 564th Strategic Missile Squadron at Warren AFB, Wyoming, now complete with addition of 3 ATLAS launch positions.

BOMARC IM-99A IM-99B AF
Type: SA
prime: Boeing power: A—Marquardt
guide: Westinghouse B—Thiokol
funding: $421.5 million on BOMARC-B in FY 61
speed: Mach 2.7
range: (A) 200+ mi. (B) 400+ mi.
★ FY '61 funding—$20.1 million. Twin BOMARC-A launch of 11 August successful. Intercept of QB-47 jet bomber.

BULLPUP ASM-N-7 Navy
Type: AS prime: Martin
guide: radio command/Republic
power: Thiokol
Now more versatile with proved capability for helicopter launch. Could provide Marine assault troops with additional offensive firepower. See WHITE LANCE for AF version.

CALEB Navy
(See Space Projects)

CLAM AF
Type: AS power: Ramjet
No contracts announced.
Chemical Low Altitude Missile listed in AF missile specifications book. Was in study and Research phase, may now have been cancelled in favor of SLAM.

COBRA USMC
Type: SS
prime: Boelkow Entwicklunger, W. Germany (distrib. U.S.: Daystrom)
guide: wire guided
power: Solid BE speed: 191 mph.
weight: 24.6 range: 1 mi.
Daystrom is turning out 1000 COBRAS a month for USMC. Possibility that Army will buy COBRA very strong now that SS-11 is ruled out.

CORPORAL SSM-A-17 Army
Type: SS power: Ryan
prime: Firestone speed: Mach 3.5
guide: Gilfillan range: 85 mi.
Giving way to SERGEANT. Many CORPORAL birds being used as targets for NIKE family.

CORVUS XASM-N-8 Navy
Type: AS prime: Temco
guide: Texas Instrument
power: Reaction Motors
range: Over 100 mi.
★ Navy has cancelled the CORVUS program, after spending an estimated $80 million. Flight testing on a limited basis will continue at PMR, in hopes that PMR and Temco personnel can obtain further info for future weapon systems.

DAVY CROCKET Army
Type: SS prime: Rock Island
FY '61 production funds: $20.6 million. Bazooka-launched, can be hand-carried or truck mounted. Has low nuclear yield warhead. DAVY CROCKETT has alternate range by switching launching tubes. However, experts feel that range is limited to 3 or 4 miles. Shell characteristics are classified, but educated estimates place weight at 50 lbs; caliber of 5 in; length of 30 in. Will be delivered to NATO in '61.

EAGLE JAAM-N-10 Navy
Type: AA prime: Bendix
guide: Bendix/Sanders
power: Aerojet speed: Mach 4
frame: Grumman range: 100 mi.
★ Douglas won contract for "Missileer" a/c; launching platform for EAGLE. These subsonic a/c will be carrier based—to fly continuous alert around ship. Dvlpmt cost estimated at apx $3 billion for EAGLE missile and a/c. Missileer a/c will be powered by 2 Pratt & Whitney TF 30-P-2 turbofan engines. Radomes by Goodyear.

FALCON GAR-1, -2, -3, -4, -9, -11 AF
Type: AA power: Thiokol
prime: Hughes speed: Mach 2+
guide: Hughes range: 5 mi.
GAR-3 is operational, SUPER FALCON GAR-3 in test. GAR-2 and 4 are infrared guided. GAR-9 is radar guided with nuclear warhead. Long range GAR-9 now being cut back in production. GAR-11 soon to be installed on F-102 Delta Daggers, giving them nuclear capability. F-102 will also carry GAR-10 and GAR-2A.

GENIE MB-1 AF
Type: AA power: Aerojet
prime: Douglas speed: Mach 4
guide: Hughes range: 1.5 mi.
Now being carried by F-89J, F-101B and F-106. First operational nuclear warhead air-to-air bird, GENIE is pointed downward at launch, curves up at target. Being replaced by guided FALCON missiles.

HAWK M-3 Army
Type: SA
prime: Raytheon power: Aerojet
guide: Raytheon range: 22 mi.
★ Two HAWK batteries to Panama in September. FY '61 funding $97.4 million.

HONEST JOHN M31 Army
Type: SS prime: Douglas
guide: unguided
power: Hercules Powder/Thiokol
range: 15 mi.
★ FY '61 funding $22 million. Latest contract to Bendix—$2 million for fuze adaption kits. SLIM JOHN (XM50) is improved model minus heavy nose.

HOUND DOG GAM-77 AF
Type: AS **XGAM-87A**
prime: North American
guide: Autonetics
power: Pratt & Whitney (J52)
funding: $170 million in FY '60
speed: Mach 1.7 range: 500+ mi.
★ Comparable Soviet missile is said to be USSR's KOMET D. Longer range version is two-stage XGAM-87A, now in R&D. $10.6 million is funded for HOUND DOG in FY '61.

PROJECT HYDRA Navy
Type: Sea launch platform
Obj: Test feasability of launching missiles from sea platform
Concept of spar buoy (vertical-floating) launch for large solid-propellant rockets. Advantages are:
1. Rocket boosters of any size may be easily transported, erected, and launched with practically no special handling equipment.
2. Mobility is unlimited over the surface of the oceans, and the rockets can also be fired from rivers and lakes of sufficient depth to float the rocket vertically.
3. The launch pads are free, water-cooled, and self-healing.
4. Launch safety is greatly increased, since the rocket is surrounded by water at launch.
5. Range safety and booster fallout problems are almost eliminated by proper choice of launch location.
6. Launch pad availability being unlimited, the scheduled launch rates can be higher than those of a land-based launch complex.

JUPITER SM-78 Army-AF-NASA
Type: SS prime: Chrysler
guide: Ford Instrument
speed: Mach 10
power: Rocketdyne range: 1750 mi.
Contract with Chrysler expires April, '61.

Rumored that Army may not renew.

LACROSSE SSM-A-12 Army
Type: SS power: Thiokol
prime: Martin speed: Mach 2
guide: Federal Tel. range: 20 mi.
★ FY '61 production funding: $8.4 million. LACROSSE is operational, now in Germany—with two battalions forming part of the NATO shield. It is multi-purpose in that it can be used against open troops as well as fortified targets. Latest contract: $1.6+ million to Trailmobile for missile containers.

LITTLE JOHN Army
Type: SS
prime: Emerson guide: unguided
power: Hercules Powder
range: 10 mi.
Limited operational use with troops. Funding for FY '60 $38½ million.

LOBBER Army
Type: SS range: 15 mi.
Designed for attack and supply missions.

LOKI Army
Type: SA prime: Grand Central
guide: unguided
power: Marquardt
★ Needle nosed rocket—103 inches in length. Useful in gathering wind data in battlefield conditions. Fall-out prediction. LOKI 2 has increased range.

LULU Navy
Type: AU prime: General Mills
★ LULU atomic depth bomb is operational with the fleet, and ready for use should the occasion demand. Designed by NOL. Production continuing at General Mills on large scale. Most details still highly classified. Carried by a/c and helicopter.

MACE TM-76 AF
Type: SS prime: Martin
guide: AC Spark/Goodyear
power: Allison (J33-A-41)
funding: $39.8 million in FY '61. No renewal.
range: (B) 1200 mi.
Request funding for MACE, FY '61 totals $31½ million. Hard site launch at Cape Canaveral successful.

MAULER Army
Type: SA
prime: Convair guide: Raytheon
Anti-missile missile for field use. Truck mounted. Second phase contract has been awarded to Convair: $5½ million. Contract to Burroughs for transportable computer system.

MINUTEMAN SM-80 AF
Type: ICBM
prime: Boeing guide: Autonetics
power: Thiokol/Aerojet/Hercules Powder
range: 6300 mi. nosecone: Avco
★ FY '61 funding $291.2 million. Additional funds may be applied. Hard MINUTEMAN squadrons have an apx price tag of $60 million per copy. Inertial navigation system by Autonetics recently accepted by AF. R.R. test successfully completed. Hercules selected over Aerojet for third stage rocket engine. Initial construction of launch facilities, including two pads, completed at Cape Canaveral.

MISSILE A Army
Type: SS
prime: GE range: 70 mi.
★ FY '61 funding $5 million for components purchasing. MISSILE A may be combined with MISSILE B for economy. Nuclear head.

MISSILE B Army
Type: SS
No contracts range: 10-20 mi.
★ No funding in FY '61. Missile for general support missions. Nuclear head.

MISSILE C Army
Type: SS
No contracts range: 70-90 mi.
Similar to SERGEANT. In dvlpmnt.

MISSILE D Army
Type: SS
No contracts range: Over 500 mi.
Now in early dvlpmnt.

NIKE-AJAX SAM-A-7 Army
Type: SA
prime: Western Electric
guide: Western Electric
power: Hercules Powder
speed: Mach 2.5 range: 30 mi.
Conversion of NIKE-AJAX sites to NIKE-HERCULES continuing rapidly in US, Europe, and Far East.

NIKE-HERCULES SAM-A-25 Army
Type: SA
prime: Western Electric
guide: Western Electric
power: Hercules/Thiokol
funding: $111.4 million in FY '61
speed: Mach 3.2 range: over 85 mi.
★ NIKE HERCULES now more mobile with addition of Douglas field installation kit. With the kit, field armies will have a high altitude defense capability, supplementing the lower level HAWK. Latest contract: $14½ million to GE for high power acquisition radars (HIPAR), to be used with NIKE HERCULES Weapon System.

NIKE-ZEUS XSAM-A-25C Army
Type: SA
prime: Western Electric
guide: Bell Telephone
power: Grand Central Rocket/Thiokol
range: 200 mi.
★ Latest contracts: Three, totalling $4 million to Western Electric for misc work on NIKE ZEUS.

PERSHING Army
Type: SS prime: Martin
guide: Bendix power: Thiokol
range: 300 mi. (1000 mi.)
★ FY '60 funding $131.6 million. Recent company proposal by Martin showed changes necessary to increase PERSHING range to 1000 mi. Regular 300 mi. version sched operational '63.

POLARIS FBM Navy
Type: US-SS prime: Lockheed
guide: GE power: Aerojet
range: 1400 and 1750 mi.
★ Lightweight second stage rocket case by Aerojet used in test of 4 August. Such improvements aimed at making 1200 mi. range POLARIS operational this year. Latest contracts: $36+ million to Westinghouse Elec for nuclear reactor compartment components of POLARIS subs. $2½ million to Raytheon for guidance system electronics sub-systems, cutting weight of guidance unit 75%. $1.2+ million to GE for advanced inertial guidance system. Total cost of $8½ billion estimated for the planned 45 POLARIS subs with missiles.

QUAIL GAM-72 AF
Type: AS-ECM prime: McDonnell
guide: Radio command/Summers
power: GE (J85) range: 200 mi.
Air-launched diversionary missile of extreme sophistication and complexity is valuable aid in protection of SAC bombers.

RAVEN XASM-9 Navy
Type: AS
No contracts announced.
range: 500 mi.
Proposed air-to-surface missile now under study. Project appears to be lagging. lagging.

REDEYE Army/USMC
Type: SA prime: Convair
guide: Convair
power: Atlantic Research
Lightweight (18 lb.) infra-red guided bazooka-type missile. Army has high hopes for this relatively inexpensive and effective, easily-carried guided missile that can be fired from a soldier's shoulder, giving him better anti-aircraft capability than ever before.

REDSTONE SSM-A-14 Army
Type: SS power: Rocketdyne
prime: Chrysler speed: Mach 5
guide: Sperry Rand range: 250 mi.
★ Now operational with U. S. troops in Europe. REDSTONE with TV camera has been successfully tested and fired in longest overland rocket flight ever attempted. Will use JUPITER C fuel tanks to increase range. August contracts to Chrysler total $3+ million for engineering services and repair parts.

SERGEANT SSM-A-27 Army
Type: SS
prime: Sperry power: Thiokol
guide: Sperry range: 85 mi.
FY '61 production funding: $52.1 million.

SHILLELAGH Army
Type: SS prime: Aeronutronics
guide: Aeronutronics
power: Picatinny Arsenal
range: 8 mi.
Gyro for complex guidance system now being dvlpd by Telecomputing. Ideal for close-in support of troops.

SIDEWINDER AAM-N-7 Navy GAR-8 AF
Type: AA
prime: Philco guide: Philco/GE
power: Hercules Powder
range: 7 mi.
Extremely popular infra-red homing missile is simple and rugged. SIDEWINDER-1C is advanced model with higher speed and greater range. Advanced model has interchangeable warhead—one with infrared guidance (IRA), the other with radar guidance (SARAH). All weather type SIDEWINDER, to be used on PHANTOM-2 fighter, now in R&D. Even more advanced model "Super Sidewinder" under dvlpmt.

SKYBOLT GAM-87A AF
Type: AS
prime: Douglas power: Aerojet
guide: Nortronics nosecone: GE
range: 1000 mi., a/c launch
★ FY '61 R&D budget set at $50 million. May be increased to allow configuration changes. GE SKYBOLT re-entry vehicle project office opened; headed by A. E. Schwerin. Latest sub-contractor: Bell, supplying accelerometers to Nortronics.

SLAM AF
Type: SS
prime: Chance-Vought
Supersonic Low Altitude Missile, big Brother of CLAM. Chance-Vought selected as prime contractor. SLAM carries nuclear head.

DATALOG OF MISSILE, SPACE AND DETECTION PROJECTS

MILITARY MISSILES, SEPTEMBER 1960

★ *New information this month*

SLIM JOHN XM50 Army
Type: SS prime: Douglas
guide: stabilizing fins
power: Hercules Powder/Thiokol
range: apx. 20 mi.
★ Advanced model of HONEST JOHN minus heavy nose.

SPARROW III AAM-N-6, 6A Navy
Type: AA guide: Raytheon
prime: Raytheon range: 5-8 mi.
power: Thiokol/Aerojet
★ Work continuing on SPARROW III with additional $26.7 million BuWeps contracts to Raytheon. Advanced powerplant a possibility.

SS-10 Army
Type: SS
weight: 33 lbs. range: 0.9 mi.
prime: Nord of France
Wire guided anti-tank weapon. Operational with U. S. and NATO forces. Used by the French in Algerian battles with success.

SS-11 Army
Type: SS
prime: Nord of France
weight: 62 lbs. range: 2 mi.
German order of 25,000 SS-11's require full production capability of Nord. Army will cease consideration of this anti-tank weapon in favor of COBRA.

SUBROC Navy
Type: SU-UU prime: Goodyear
guide: Librascope/Kearfott
power: Thiokol range: 25-50 mi.
This complex weapons system is launched through a torpedo tube of a submarine or surface vessel. Rising, it flies from 25 to 50 miles through the air, then re-enters the water and homes on its submerged target. Key to perfection of the system is reliability and range of built-in sonar equipment. Work is now continuing along that line.

TALOS SAM-N-6 Navy
Type: SA guide: Bendix/AVCO
prime: Bendix power: McDonnell
range: 75+ mi. speed: Mach 2.5
Unique in its integral ramjet body, TALOS is now operational aboard the guided missile cruiser GALVESTON.

TARTAR Navy
Type: SA prime: Convair
guide: Sperry
power: Aerojet/Rocketdyne
speed: Mach 2.0 range: 10+ mi.
★ Production increased on TARTAR missile. Will be primary armament of guided missile destroyers; secondary armament of guided missile cruisers. Improved TARTAR now in dvlpmt stage. Will have improved parts and higher energy solid propellant fuel. Latest contract $6 million to Hycon Mfg on TARTAR and TERRIER complete missile checkout system.

TERRIER SAM-N-7 Navy
Type: SA prime: Convair
guide: Sperry
power: Allegheny/Rocketdyne
speed: Mach 2.5 range: Apx. 12 mi.
★ Beam riding missile for use on larger surface ships. Latest contract $6 million to Hycon Mfg on TARTAR and TERRIER complete missile checkout system. Operational with the fleet. Advanced TERRIER missiles now in increased production.

THOR SM-75 AF-NASA
Type: IRBM prime: Douglas
guide: AC Spark Plug
nosecone: GE
power: North American range: 1500 mi.
Now operational. AF has bought 21 additional THOR IRBM's. 10 will go to NASA.

TITAN SM-68B SM-68 AF
Type: ICBM prime: Martin
guide: Bell/Am. Bosch/Sperry Rand
power: Aerojet nosecone: AVCO
range: 5500 mi./9775 mi. (Titan 2)
AF funding for TITAN in FY '61—$409.4 million. 5000 mi. flight of 30 Aug marked second straight success for operational prototype TITAN.

TYPHON Navy
Type: SA-SS range: 20 and 100 mi.
Under dvlpt. by Navy. New name for SUPER TALOS (long range TYPHON) and SUPER TARTAR (medium range TYPHON).

WAGTAIL AF
Type: AS prime: Minn.-Honey
guide: Minn.-Honeywell
power: not releasable
This remarkable rocket will be able to follow contours of terrain and change speed in flight. WAGTAIL has been successfully sled-tested.

WEAPON ALPHA Navy
Type: SU No contracts released
BuOrd "in-house"
Operational with the fleet, WEAPON ALPHA is rocket-powered depth charge now installed on destroyer escorts and class 931 frigates. The device will be replaced by semi-long range rocket-launched homing torpedoes, and is therefore already approaching obsolescence.

WHITE LANCE GAM-83A GAM-83B AF
Type: AS prime: Martin
guide: radio command/Republic
power: Thiokol
★ Larger model of Navy BULLPUP for AF use. Now in dvlpmnt. Sched to be operational by November '60. FY '60 funding $6½ million.

WILLOW Army
Type: SS prime: Chrysler
All information still highly classified.

ZUNI Navy
Type: AS-AA
Fuze contract released to Bulova
range: 5 mi.
Operational with carrier based a/c, ZUNI is a folding fin all-weather unguided rocket carried in multiple units. The Douglas AD a/c carry 48 ZUNIs below their wings on combat missions. The weapon is effective against pill-boxes, tanks, gun emplacements and small ships.

SPACE PROJECTS

PROJECT ADVENT Army
Type: Advanced Communications Satellite
prime: No contracts announced
Obj: Designed to be a global real-time repeater.
★ Basically same as PROJECT DECREE except for accelerated pace. Polar-orbiting satellites, such as PROJECT STEER and PROJECT TACKLE, may grow as off-shoots of PROJECT ADVENT. Latest contracts: $2 million to Bendix for communications and ground terminal equipment. $1 million to Sylvania for ground antenna systems.

AEROBEE Navy
Type: Research Rocket
prime NRL
★ Directional control by A/C Armaments. Measures solar ultraviolet spectrum.

AEROS NASA
Type: Meteorological Satellite
Obj: Designed to take pix of cloud formations and frontal systems.
Successor to NIMBUS, will be a 24 hour stationary weather satellite.

AGENA AF/NASA
Type: Liquid-fueled Upper Stage
prime: Lockheed
Obj: AGENA will be useable as a second stage to ATLAS and THOR missiles. It incorporates a Bell rocket engine similar to that used previously in the HUSTLER vehicle. The AGENA upper stage is used in DISCOVERER, MIDAS and other projects. AGENA and SATURN are part of PROJECT TRIBE.

AGENA B AF/NASA
Type: Liquid Fuel Upper Stage
prime: Lockheed
Obj: Deep Space Missions
ATLAS-AGENA B moon shot sched for mid '61. It will TV moon and land instrument capsule to tell NASA about the makeup of the moon. Shot with THOR sched this summer by AF. NASA will buy 16 Agena-B launch vehicles for $50 million.

APOLLO NASA
Type: Manned Spacecraft
prime: No contracts announced
Obj: Earth- or lunar-orbiting space lab for three men
★ Advanced space vehicle. May be used for manned earth orbit or circumlunar flight. APOLLO NASA—industry conference Sept. This program has no standing as a national program, but much emphasis is placed on it by NASA.

ARCAS NASA
Type: Sounding Rocket
prime: Atlantic Research
★ Capable of lifting 12 lbs to alt of 40 mi. Latest contract to Dage for TV nosecone camera. Nosecone is 4½ in diameter.

ARCON NASA
Type: Sounding Rocket
prime: Atlantic Research
★ Carries 40 lb payload to alt of 60 mi.

ASTROBEE AF
Type: Space Probe Rocket
Obj: Designed for short-range space-probes
Repeated use of this handy rocket. Many missions planned for future short-range space research missions.

ATLAS-ABLE NASA
Type: Large Booster
prime: Convair/Space Tech Labs
guide: GE/Burroughs/Am. Bosch
power: Rocketdyne/Aerojet
Obj: Designed to orbit 200-lb. satellite around moon.
2 ATLAS-ABLE shots are sched for late '60. Both aimed at lunar orbit. Project going well, with much interest in this combo.

CALEB Navy
Type: Astronautics Vehicle
prime: In House
Now entering instrumented test firing stage. Launched from F4D or F4H fighter a/c. Planned to launch small payloads into orbit. CALEB is planned as "a vehicle of potential operational use to the Fleet for recon, meteorological and other military missions."

DATALOG OF MISSILE, SPACE AND DETECTION PROJECTS

SPACE PROJECTS, SEPTEMBER 1960

★ *New information this month*

CENTAUR NASA
Type: Soft-Land Moon Vehicle
prime: Convair
guide: Minn.-Honeywell
power: P&W/JPL
1st stage: Hi-energy Atlas
2nd stage: 2 P&W liquid hydrogen engines
3rd stage: JPL 6000 lb. thrust liquid engine
Obj: Designed to land 730-lb. payload on moon in soft landing, for heavy earth satellites and probes to Mars and Venus.

Static tests underway in San Diego. Full firing due early '61.

COURIER ARPA (Army)
Type: Communications Satellite
prime: Philco
Obj: Designed to be delayed repeater satellite, part of PROJECT NOTUS.

Launch expected momentarily.

PROJECT DISCOVERER AF
Type: Stabilized Satellites
Obj: (a) Achieve orbital capabilities of large satellite vehicles.
(b) Dvlp tech for operational military satellite systems.
(c) Recover by use of suitable re-entry capsule for biomedical and other studies.
(d) Execute nonrecoverable advanced engineering tests.
(e) Other objectives as directed.

★ DISCOVERER 14 launch of 18 August successful.

DYNA-SOAR I AF/NASA
Type: Boost-Glide Orbiting Vehicle
prime: Boeing (for Glider)
Martin (for Booster)
Obj: Manned glider for orbit and re-entry

★ FY '61 budget: $58 million. AF has also released FY '59 and '60 funds totalling $29.7 million. Total cost expected to be over $1 billion. DYNA-SOAR has 3 stages: 1st is TITAN 1st stage with added fins for take-off stabilization. 2nd stage, elongated version of TITAN 2nd stage. 3rd stage—one man delta-wing glider.

PROJECT ECHO NASA
Type: Inflatable Satellites
Obj: Global communications experiment.

★ Continued use of ECHO 1 satellite for radio communications. ECHO 2 launch to follow.

IRIS NASA
Type: Sounding Rocket
prime: Atlantic Research
Obj: Designed to put 100 lb. payload at 200 mi. altitude.

★ IRIS is capable of lifting 100 lbs to an altitude of 200 miles. In first test 22 July, it lifted 150 lbs 140 miles. It is a low cost rocket, each unit costing apx ½ that of comparable rockets. Launch of 22 July was first for IRIS. Termed highly successful.

JUNO II NASA
Type: Large Booster prime: Chrysler
guide: Ford Instrument
power: Rocketdyne/JPL
Obj: Attempts to put small payloads in space.

Project to be completed, 1960.

PROJECT LORRAINE ARPA
Type: Basic research in energy conversion
obj: Designed to stimulate the flow of fundamental knowledge of the conversion of energy into useful power sources and to support selected research in this field.

★ Through this project ARPA will extend early research, such as power for satellite programs, and review all ideas that have a potential in the conversion of chemical, nuclear and solar energy into power.

MARINER NASA
Type: Space Vehicle
Obj: Planetary missions

Post MERCURY project, designed for planetary voyages. May weigh close to 50,000 lbs.

MERCURY NASA
Type: Manned Satellite
prime: McDonnell
Obj: Will attempt to put man in brief orbit, then parachute him in capsule safely to earth.
power: ATLAS (Rocketdyne)

Continual delays and failures make sched launch date doubtful.

MIDAS WS 117L AF
Type: Early Warning Satellite
prime: Lockheed
Obj: Infrared sensing of enemy ICBM launchings.

★ AF has $41 million for MIDAS in FY '61. MIDAS would double our warning time of enemy ICBM launch, detecting heat from exhaust of missile as it is launched. ATLAS-AGENA vehicle will be used. Initial launches from Cape Canaveral—later from Point Arguello.

MRS. V ARPA
Type: Maneuverable, Recoverable Manned-Space Vehicle
Obj: Will attempt to place manned vehicle in orbit, then maneuver out of original orbit in space, then return safely to earth.

This project is also known as DYNA-SOAR II. Vehicle will weigh in excess of 20,000 lbs. Launch may be from or to space.

NERV NASA
Type: Nuclear Emulsion Recovery Vehicle
prime: GE
Obj: Measurements of Van Allen Radiation belts

Initial shots expected Sept '60 with ARGO D-8 rocket. Later shots with SCOUT, not yet on calendar, designed to place 75 lb. cone-shaped payload to alt of 10,000 mi. Early shots to alt of 1800 mi.

NIMBUS NASA
Type: Meteorological Satellite
Obj: Designed to take TV pix of cloud formations and frontal systems. Will be in polar orbit, earth oriented.

Total of 10 satellites will be launched through 1965—one every 6 months. THOR AGENA-B vehicles will be used. Improved components will be used as available. Invitations to bid will be issued soon.

NOVA NASA
Type: Large Booster
prime: Rocketdyne
power: Rocketdyne
Obj: Will build 6-12 million lb. thrust booster for Outer Space

Rocketdyne's 1.5 million lb. thrust engine is heart of this system. NOVA will be cluster of 4-6 such engines. Engine in early dvlpmnt now, sched for operation after 1965.

ORION AF
Type: Rocket propelled by nuclear pulses
prime: General Atomic
Obj: Nuclear powered Outer Space Vehicle

In basic testing stage. Apx $2½ million spent to date.

PHOENIX NASA
Type: Research Rocket
prime: Rocket Power/Talco

★ Operational shots soon from Wallops. PHOENIX 2-stage vehicle cost $150,000 for dvlpmt. Carries 12 lb load 200 mi.

PONTUS ARPA
Type: Material Research
prime: no contracts announced
Obj: Experimentation and dvlpmnt of better structural and power conversion materials for military requirements in surface, air and missile programs.

Contracts awarded to Cornell, Penn, Northwestern Universities. Total funding through 1963; $13.9 million, to establish, equip and operate labs. Additional labs may be set up at other universities at a later date.

PRINCIPIA ARPA
Type: Solid Propellants
Obj: Dvlping new solid propellants with 10-20 percent higher specific impulses.

Project studies to be carried out by universities. Contract negotiations now almost completed.

PROJECT 609A AF
Type: Hyper-Environmental Test System (HETS)
prime: Aeronutronic
guide: Minn.-Honeywell
power: Aerojet/Allegany/Thiokol
Obj: Testing equipment and techniques; collecting scientific data at space equivalent altitudes in support of ARDC mission of advancing the state-of-the-art components, subsystems, and specialized methods related to future ballistic missile and military space systems.

The 609A research support vehicles are a family of solid fuel multi-stage ballistic missiles incorporating basic components of the fourth-stage NASA SCOUT vehicle which are modified and arranged in various configurations to fulfill special AF requirements.

PROSPECTOR NASA
Type: Lunar Probe
Obj: Soft landing of instruments on moon

PROJECT RANGER NASA
Type: Lunar Probe
prime: J P L
power: NA/Hercules
payload: Aeronutronic
Obj: Hard landing of instruments on moon

★ ATLAS-AGENA B will carry 800 lb. (RANGER) package to moon. The larger payload will orient the 300 lb. (TONTO) package for hard moon landing. At 20-25 mi from moon TONTO package is detached on command from altimeter, and retro-rocket slows speed to under 300 mph on impact. Parent craft impacts at over 5000 mph. TONTO package contains seismometer, temperature-recording devices and other instruments.

REBOUND NASA
Type: Communications Satellite Network
Obj: Establish series of passive satellites for global communications.

These multiple passive satellites will be much like ECHO, succeeding that project.

PROJECT ROVER AEC/NASA
Type: Nuclear rocket
Obj: Prove feasibility of nuclear rocket

★ Now in R&D. Lockheed has contract to find adequate atom resistant materials. AEC to dvlp powerplant, KIWI-A and advanced

DATALOG OF MISSILE, SPACE AND DETECTION PROJECTS

SPACE PROJECTS, SEPTEMBER 1960

★ *New information this month*

KIWI-A3. NASA to provide frame and test combined power-plant, air-frame. $100 million in funds restored to project ROVER, bringing grand total of $58 million in FY '61 funds. Will see nuclear power-plant by '63, rocket by '66. KIWI-A3 rocket propulsion reactor test re-sched for end Sept. $100,000 each to Lockheed and Martin to include preliminary design, dvlpmt, programming, planning of test and tracking facilities, schedules and safety factors.

SAMOS WS 117L AF
Type: Reconnaissance Satellite
prime: Lockheed Obj: TV Satellite
AF has $199.9 million in FY '61 for SAMOS. May get additional funds up to $84 million, mostly for program speedup.

SATURN NASA
Type: Large Booster prime: Convair
power: Pratt & Whitney/Rocketdyne
Obj: Clustered 1.5 million lb. thrust booster for Outer Space Vehicles.
★ SATURN test facility at Marshall Space Flight Center—now under construction. The site will accommodate the vehicle for full operational tests.

SCOUT NASA
Type: Four-stage Satellite Launch Vehicle
prime: Chance Vought
guide: Minn.-Honeywell
power: Aerojet/Allegany/Thiokol
Obj: Designed to place 200-300 lb. satellites in orbit.
First stage: Modified POLARIS
Second stage: Modified SERGEANT
Third stage: Antares
Fourth stage: standard VANGUARD 3rd stage.
Second test of SCOUT stopped after third stage firing. No malfunction indicated, only radar signal mistake. Next test sched end '60.

SHEPARD ARPA
Type: Tracking System
Obj: Tracking and data reduction
System will detect and track satellites from Space Surveillance Control Center.

SUNRISE ARPA
PROJECT SUNRISE will make studies of advanced military weapons with special concentration on space delivery.

SURVEYOR NASA
Type: Lunar Probe
Obj: Soft landing of instruments on moon

THOR-ABLE NASA
Type: Large Booster
prime: Douglas/Space Tech Labs
Obj: Designed for deep space probes of lighter payloads than ATLAS-ABLE.
guide: GE
power: Rocketdyne/Aerojet
Good reliability with this combo, as shown by success of PIONEER 5, in giving us valuable outer-space data.

THOR-DELTA NASA
Type: Satellite Launching Vehicle
prime: Douglas guide: ITT
power: Aerojet/Allegany
Obj: Designed to put small satellites (50-80 lbs.) into orbit around moon.
★ Successfully used as launch vehicle for TIROS 2 meteorological satellite.

TIROS 2 NASA
Type: Meteorological Satellite
prime: RCA
Obj: Provide info on nature of weather
★ Launch successful on TIROS 2 much like TIROS 1, with infra-red photo equipment. THOR-DELTA powered.

PROJECT TRANSIT Navy
Type: Navigation Satellite
prime: APL/JHU
Obj: Earth satellite system to provide accurate all-weather navigation for surface ships, a/c, and subs.
★ TRANSIT 3-A sched to be launched November from Cape Canaveral. Will be another piggy-back shot. Two R&D TRANSIT satellites are presently in orbit: TRANSIT 1 launched 13 April 1960 and TRANSIT 2 launched 22 June 1960.

PROJECT TRIBE ARPA
Obj: Outer Space Vehicles
PROJECT TRIBE is a research, experimentation and systems dvlpmnt designed to obtain at the earliest practical date a continuing family of military space vehicles capable of satisfying the needs for space missions as may be determined by Secretary of Defense from time to time. Guidance, stabilization and control components necessary to satisfactory performance of the vehicles shall be included in the scope of this assignment. SATURN and AGENA are part of Project TRIBE.

VOYAGER NASA
Type: Advanced Spacecraft
Obj: Various planetary missions
More advanced craft than the planned MARINER vehicle.

X-15 AF/Navy/NASA
Type: Rocket-Powered Manned Aircraft
prime: North American power: Thiokol
Obj: Designed to take man in controlable a/c to fringes of outer space—250,000 ft. altitude, at speed of Mach 5 (better than 3600 mph.).
★ FY '61 funding $6 million for advanced dvlpmt. Recent record flights: Alt—136,500 ft; speed—2196 mph. Flight with North American XLR-99 engine expected soon.

DETECTION PROJECTS

BALLISTIC MISSILE DEFENSE BMEWS AF
Type: Ballistic Missile Defense Radar System
prime: RCA
Obj: Ballistic Missile Early Warning System designed for 40-minute notice of approaching enemy ICBMs.
R&D cost of BMEWS—$700 million. Production and construction costs will total $180 million. Estimated total cost upon completion is $1 billion.

PROJECT DEFENDER ARPA
Obj: Ballistic Missile Defense
ESAR, TRADEX and PINCUSHION are only part of the entire ballistic missile defense program of ARPA. The GLIPAR studies, (Guide Line Identification Program for Anti-Missile Research) is also a part of Project DEFENDER.

ESAR ARPA
Type: Advanced Warning Radar
prime: Bendix
Obj: Electronically Steerable Array Radar is designed for ground installation to warn of approaching enemy missiles. Multitude of individual cells will give more flexibility than other systems of steerable radar. Part of PROJECT DEFENDER.

GLIPAR ARPA
Type: Study Group for Missile Defense
Obj: Designed to work on future ICBM defense. Called upon by DEFENDER and LONGSIGHT.

PROJECT LONGSIGHT ARPA
Type: Study System in Missile/Space Field
Obj: Recommendations as to projects which should be initiated to satisfy future military requirements. GLIPAR (Guide Line Identification Program for Anti-Missile Research) which was initiated. GLIPAR is now used by both LONGSIGHT and DEFENDER. LONGSIGHT more advanced than DEFENDER.

PINCUSHION ARPA
Type: Advanced Radar prime: Raytheon
Obj: PINCUSHION is a many-frequency radar installation to be located on Kwajalein in the Marshall Islands, initially, as an early warning radar, more variable than TRADEX or ESAR.

SAGE AF
Type: Semiautomatic Ground Environment System
prime: IBM
Obj: Provides a push-button missile defense utilizing a search radar system to locate enemy aircraft and destroy them with BOMARC missiles.
★ The SAGE System includes: Air route traffic control centers, weather stations, interceptor bases, radar picket ships, airborne early warning and control, the Texas towers, shore radio sites, gap filler radar, long range radar sites (surveillance height and identification), direction centers, combat centers, data link and voice radio sites, manned interceptors, BOMARC, and NIKE.

PROJECT SPASUR ARPA
Type: Space Surveillance System
prime: NRL/Bendix
Obj: To produce a system capable of detecting, identifying, and determining orbits of non-radiating objects in space.
The feasibility and operational capability of SPASUR has been demonstrated. A need now exists to increase the detection range and data handling capability of the system.

PROJECT TEEPEE Navy
Type: Long Range, High Frequency Radar
Obj: Provide ICBM detection

TRADEX ARPA
Type: Advanced Radar
prime: RCA
Obj: TRADEX is a modification of the radar types designed for BMEWS. It has better range.

VELA ARPA
Obj: Research, experimentation and systems dvlpmnt related to the nuclear test moratorium.
VELA Uniform: R&D on sub-surface nuclear explosion detection. Funding for FY '60: $8,535,000.
VELA Sierra: R&D on ground detection of nuclear explosions in space. Funding for FY '60: $1,050,000.
VELA Hotel: R&D on satellite detection of nuclear explosions in space. Funding for FY '60: $300,000.
16 study contracts in seismological research released July to universities. 8 more to be released in same field.

Not in his class

Doc Jones was called to examine his old friend, who at 64, had married a woman less than half his age. The doctor noticed that she was an extremely attractive girl. After a thorough examination the doctor knew the cause of illness was exhaustion. He wrote a prescription and as he was preparing to leave, his old friend asked: "Well, Doc, what's wrong with me? Am I overweight?"

"No, Frank," answered the doctor with a sideward glance at the buxom young bride, "Overmatched."

* * *

Double jeopardy

We know a man who is so suspicious of his wife that when she presented him with twins, he insisted that he recognized only one of them.

* * *

Really Lazy

A businessman wintering in Miami, took a walk along the surf when he came upon a fellow, fishing pole clutched in his hands, sound asleep. Just then the pole began to jerk violently.

"Hey there," cried the businessman, as he roused the fisherman. Look out there! You have a bite."

"That's right, I do," yawned the drowsy one. Will you kindly do me a favor? Pull in the line for me."

The businessman, somewhat surprised, did as he was requested.

"Now," continued the fisherman, "put some fresh bait on the hook and cast the line out for me."

Again the amazed businessman complied. "You know, mister," he declared, "Anyone as lazy as you ought to get married and have a son so he could do these things for him."

"That's a good idea, Mister," beamed the fisherman. "Know where I could find a pregnant woman?"

* * *

Let yourself go

Man at a bar complaining to another and sobbing hysterically, "My wife just left me and I can't control my emotions! I just can't control my emotions!"

Second Man: "Why bother? Let yourself go, you'll feel better after a good laugh!"

* * *

Plain VD is better than MKVD

The sick Russian heard a knock on his door.

"Who's there?" he asked.

"Death," answered an angelic voice.

"Thank God, I thought it was the secret police!"

* * *

Art for Art's sake

First BuWeps Steno: I posed in the nude for that artist last night in his studio apartment."

Second BuWeps Steno: "Why, you're not a model."

First BuWeps Steno: "Well, that's all right. He can't draw, either."

My wife asks for money

"My wife is always asking for money. Yesterday she asked for $100. The day before she wanted $70, and today she asked for $200."

Friend: "What does she do with all that money?"

"I don't know, I never give her any."

* * *

And did you know . . .

An artist's model is nearly always unsuited for her work.

* * *

Secretary stories

We recently met a Washington secretary who is so dumb she believes that the English Channel is the one on TV on which you watch British movies.

* * *

A shapely secretary, who had recently been transferred from the Chicago office to the Washington office of a large defense contractor, stepped into the office of her new boss, and asked, "What exactly are my duties?"

"Oh, just do exactly as you did in the Chicago office," explained the Washington manager.

"All right," she answered matter-of-factly, "kiss me and let's get started!"

* * *

A sweet young steno was interested in furnishing her new Georgetown apartment. She walked into the furniture store and said, "I would like to see some sexual furniture." The salesman attempted to correct her, saying, "I believe you mean sectional furniture." "No," she replied in explanation, "I mean sexual furniture. I like an occasional piece in the living room."

* * *

"Peace and good will"

A young couple went to a small town to get married. When they were informed they had to wait three days for a marriage license the young suitor looked at the minister and said, "Can you say a few words just to tide us over the weekend?"

* * *

Aw, rats!

It was at the eighth annual mouse convention and mice from near and far had gathered for the ball. A pretty little female mouse waltzed by the stag line and one of the males whistled a low, dirty whistle to himself. Turning to another male mouse he said, "Look at the legs on that mouse, aren't they beautiful?"

"Just fair," was the answer.

"Are you crazy?" said the first mouse and then turning to another, asked his opinion.

"They're nice," said the third mouse, "but nothing to get excited about."

"Some mice have no appreciation," exclaimed the first mouse. "Now you," he said to the fourth member of the group, "what do you think of them?"

"To tell the truth," was the reply, "I'm no authority on legs. I'm a titmouse myself."

DATA's 1960-61 SCHEDULE

	1960	1961
JANUARY	Air Research & Development Command (ARDC)	Air Research & Development Command (ARDC)
FEBRUARY	Bureau of Naval Weapons (BuWeps)	Bureau of Naval Weapons (BuWeps) and Bureau of Ships (BuShips)
MARCH	National Aeronautics & Space Administration (NASA)	National Aeronautics & Space Administration (NASA)
APRIL	Navy Supply System	Federal Aviation Agency (FAA)
MAY	Army Ordnance Corps	West German Defense
JUNE	Air Materiel Command (AMC)	Air Materiel Command (AMC)
JULY	Navy Anti-Submarine Warfare (ASW) Program	Navy Anti-Submarine Warfare (ASW) Program
AUGUST	Navy Astronautics Program	Air Force Electronics Program (Rome ADC & AFCCDD)
SEPTEMBER	Army Signal Corps	Army Signal Corps
OCTOBER	Army Research & Development Program	Army Transportation Corps
NOVEMBER	Mutual Security Program	Army Ordnance Corps
DECEMBER	Department of Defense Annual	Department of Defense Annual

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SEPTEMBER 1960

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Title of Chart or Report	*Revised*	*DATAGRAF Order No. & Price @*		*Revisions Now Quantity*	*Send All Later Revisions and Bill Me*
DEFENSE COMMUNICATIONS AGENCY	1 Sept 60	R-21	$3	.....	☐
INTERIM REPORT ON BU WEAPONS	1 Sept 60	IRBW-14A	$10	.....	☐
AF DIRECTORATE OF CIVIL ENGINEERING	1 Sept 60	C-87	$3	.....	☐
DEFENSE FY 1961 OBLIGATIONS	1 Sept 60	C-46	$3	.....	☐
DEFENSE FY 1961 APPROPRIATIONS	1 Sept 60	C-47	$3	.....	☐

SEPTEMBER 1960 REVISIONS

SAC (Strategic Air Cmd)	1 Sept 60	C-79	$3	.....	☐
Hq Continental Army Cmd, Ft. Monroe	1 Sept 60	C-55	$3	.....	☐
Army Signal Cor R&D, Ft Monmouth	1 Sept 60	C-10	$3	.....	☐
Army Signal Cor Supply Ag USASSA, Phila.	1 Sept 60	C-11	$3	.....	☐
Army Installations	1 Sept 60	R-4	$3	.....	☐
Defense R&E Pers List	1 Sept 60	R-8	$3	.....	☐
Army Chief of Ordnance	1 Sept 60	C-17	$3	.....	☐
Army Ballistic Missile Agency (ABMA)	1 Sept 60	C22	$3	.....	☐
Army Engineers R&D Lab (ERDL)—Ft. Belvoir	1 Sept 60	C-29	$3	.....	☐

SEPTEMBER 1960
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Title of Chart or Report	*Revised*	*DATAGRAF Order No. & Price @*		*Quantity Desired Now*	*Send All Later Revisions and Bill Me*
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ARPA (Personnel)	1 June 60	C-8	$3	.....	☐
DASA—Defense Atomic Support Agency	1 July 60	C-77	$3	.....	☐
*Defense R&E Pers List	1 Sept 60	R-8	$3	.....	☐
**Defense Communications Agency	1 Sept 60	R-21	$3	.....	☐
**Dept. Defense Fiscal Obligations for FY 1961	1 Sept 60	C-46	$3	.....	☐
**Dept Defense Appropriations Act for FY 1961	1 Sept 60	C-47	$3	.....	☐
DEPARTMENT OF THE ARMY					
Dept of Army Executives	1 Aug 60	C-3	$3	.....	☐
*Army Chief of Ordnance	1 Sept 60	C-17	$3	.....	☐
Army Ord Missile Cmd	1 May 60	C-21	$3	.....	☐
*Army Ballistic Missile Ag	1 Sept 60	C-22	$3	.....	☐
Army Rocket & GM Ag	1 May 60	C-24	$3	.....	☐
Aberdeen Prv Grnd	1 May 60	C-76	$3	.....	☐
Ordnance Supply Distribution System	1 Aug 60	C-83	$3	.....	☐
*Signal Corps—R&D Lab (Ft. Monmouth)	1 Sept 60	C-10	$3	.....	☐
*Signal Corps—USASSA (Supply Agency, Phil.)	1 Sept 60	C-11	$3	.....	☐
*Eng R&D Lab—Belvoir	1 Sept 60	C-29	$3	.....	☐
Army TRECOM	1 Aug 60	C-74	$3	.....	☐
Army R&D Command	1 July 60	C-67	$3	.....	☐
*Hq Continental Army Cmd, Ft. Monroe	1 Sept 60	C-55	$3	.....	☐
*Army Installations	1 Sept 60	R-4	$3	.....	☐
NAVY DEPARTMENT					
Navy Department Chiefs	1 Aug 60	C-2	$3	.....	
Bureau of Naval Weapons	1 July 60	C-71	$5	.....	
**Interim Rpt on BuWeps (24 pgs and charts)	1 Sept 60	IRBW-14A	$10	.....	
Bureau of Ships	1 June 60	C-15	$3	.....	
Office of Naval Research	1 May 60	C-5	$3	.....	
Naval Research Lab (NRL)	1 July 60	C-54	$3	.....	
Navy Ordnance Lab (NOL)	1 July 60	C-78	$3	.....	
SECNAV Responsibilities	1 Aug 60	C-84	$3	.....	
Chief of Naval Operations	1 July 60	C-23	$3	.....	
CINCLANT	1 Aug 60	C-85	$3	.....	
COMOPTEVFOR	1 Aug 60	C-82	$3	.....	
Navy Installations	1 June 60	R-3	$3	.....	
DEPARTMENT OF AIR FORCE					
Dept of AF Chiefs	1 Aug 60	C-4	$3	.....	
ARDC Hq.	1 Aug 60	C-33	$3	.....	
AF Missile Test Center	1 July 60	C-42	$3	.....	
WADD (Wright-Pat)	1 June 60	C-68	$3	.....	
AF Ballistic Missile Div	1 July 60	C-50	$3	.....	
AFOSR (Sci. Research)	1 May 60	C-7	$3	.....	
Air Materiel Command	1 June 60	C-30	$3	.....	
AMC Aero Systems	1 June 60	C-45	$3	.....	
AMC Ballistic Miss Div	1 June 60	C-48	$3	.....	
AF DCS—M (Materiel)	1 July 60	C-52	$3	.....	
Air Force Bases—Map	1 July 60	C-6	$5	.....	
*SAC (Strategic Air Cmd)	1 Sept 60	C-79	$3	.....	
TAC (Tactical Air Cmd)	1 Aug 60	C-69	$3	.....	
**AF Directorate of Civil Engineering	1 Sept 60	C-87	$3	.....	
Air Force Installations	1 June 60	R-1	$3	.....	
OTHER FEDERAL ACTIVITIES					
Federal Aviation Agency	1 June 60	C-12	$3	.....	
Natl Aero & Space Admin	1 Aug 60	C-31	$3	.....	
U. S. Space Program	1 Aug 60	C-75	$5	.....	
Atomic Energy Comm	1 July 60	C-80	$3	.....	
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Bureau of Weapons Issue	1 Feb 60	R-14	$3	.....	
ICA Issue	1 Nov 59	R-11	$3	.....	
Transportation Corps	1 Oct 59	R-10	$3	.....	
*Army Installations	1 Sept 60	R-4	$3	.....	
Navy Installations	1 June 60	R-3	$3	.....	
**Interim Report, Bureau Naval Weapons	1 Sept 60	IRBW-14A	$10	.....	

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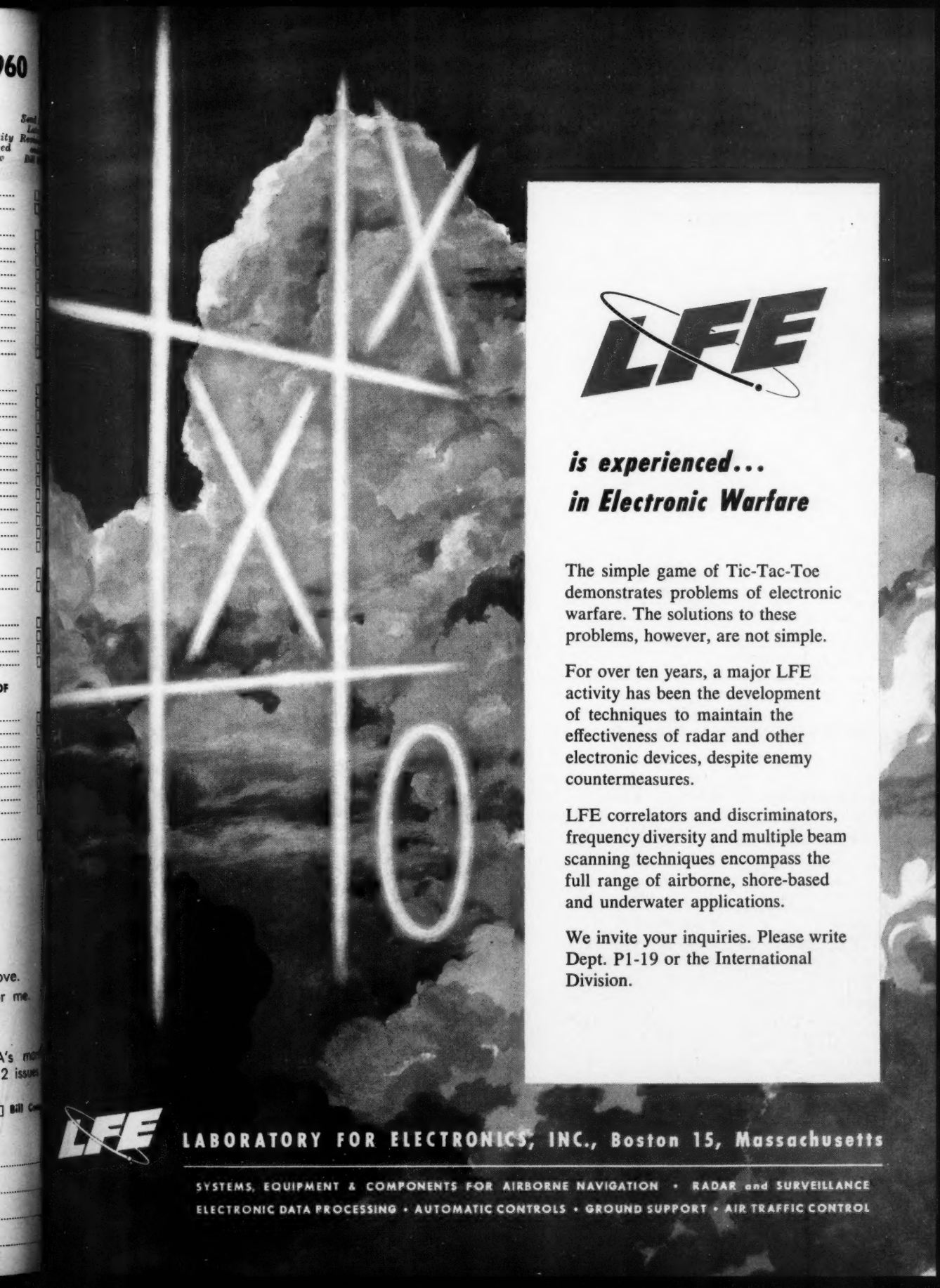

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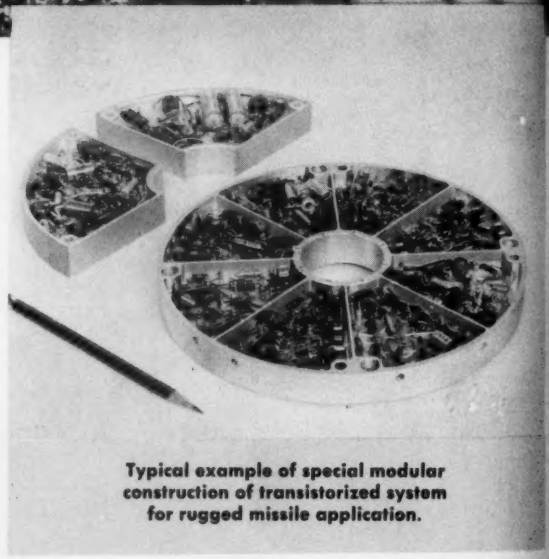

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